A Presidential Address
ON
THE INFLUENCE OF BRAIN-POWER ON HISTORY.

Delivered before the British Association for the Advancement of Science, at Southport, on Sept. 9th, 1903,

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[AFTER a sympathetic reference to the recent death of the Marquis of Salisbury, whom he described as "one of the most illustrious of our Past-Presidents," Sir Norman Lockyer proceeded as follows:]

THE BRITISH ASSOCIATION AS A POSSIBLE FACTOR IN NATIONAL EDUCATION.

Last year, when this friend of science ceased to be Prime Minister, he was succeeded by another statesman who has shown in many utterances that he has a clear understanding of the real place of science in modern civilisation. We then have good grounds for hoping that the improvement in the position of science in this country which we owe to the one will also be the care of his successor, who has honoured the Association by accepting the unanimous nomination of your Council to be your President next year.

On this we may congratulate ourselves all the more because I think, although it is not generally recognised that the century into which we have now well entered may be more momentous than any which has preceded it, and that the present history of the world is being so largely moulded by the influence of brain-power, which in these modern days has to do with natural as well as human forces and laws, that statesmen and politicians will have in the future to pay more regard to education and science as empire-builders and empire-guarders than they have paid in the past. The nineteenth century will ever be known as the one in which the influences of science were first fully realised in civilised communities; the scientific progress was so gigantic that it seems rash to predict that any of its successors can be more important in the life of any nation.

Disraeli, in 1873, referring to the progress up to that year, spoke as follows: "How much has happened in these 50 years—a period more remarkable than any, I will venture to say, in the annals of mankind. I am not thinking of the rise and fall of empires, the change of dynasties, the establishment of governments. I am thinking of those revolutions of science which have had much more effect than any political causes, which have changed the position and prospects of mankind more than all the conquests and all the codes and all the legislators that ever lived."[1]

Britain in the middle of the last century was certainly the country which gained the most by the advent of science, for she was then in full possession of those material gifts of nature, coal and iron, the combined winning and utilisation of which, in the production of machinery and in other ways, soon made her the richest country in the world. With the winning of mineral wealth and the production of machinery in other countries our superiority as depending upon our first use of vast material resources was reduced, and while the foundations of our superiority depending upon our *material resources* were being thus sapped by a cause *which was beyond our control*, our statesmen and our universities were blind leaders of the blind, and our other asset, our mental resources, which was within our control, was culpably neglected. If our Ministers had been more wise and our universities more numerous and efficient our *mental resources* would have been developed by improvements in educational method, by the introduction of science into schools, and, more important than all the rest, by the teaching of science by experiment, observation, and research, and not from books. It is because this was not done that we have fallen behind other nations in properly applying science to industry, so that our applications of science to industry are relatively less important than they were.

[1] Nature, Nov. 27th, 1873, vol. ix., p. 71.

Now the objects of the British Association as laid down by its founders 72 years ago are "To give a stronger impulse and a more systematic direction to scientific inquiry—to promote the intercourse of those who cultivate science in different parts of the British Empire with one another and with foreign philosophers—to obtain a more general attention to the objects of science and a removal of any disadvantages of a public kind which impede its progress." In the main my predecessors in this chair have dealt, and with great benefit to science, with the objects first named.

But at a critical time like the present I find it imperative to depart from the course so generally followed by my predecessors and to deal with the last object named, for unless by some means or other we "obtain a more general attention to the objects of science and a removal of any disadvantages of a public kind which impede its progress," we shall suffer in competition with other communities in which science is more generally utilised for the purposes of the national life. This struggle is one in which science and brains take the place of military weapons, which up to the present have determined the history and fate of nations. The school, the university, the laboratory, and the workshop are the battle-fields of this new warfare.

[Sir Norman Lockyer here quoted the Prince of Wales's admonition to Great Britain to wake up and also passages from speeches delivered by Lord Rosebery and Mr. Joseph Chamberlain in January, 1901, relative to the commercial rivalry of nations. He continued:]

The Prime Minister said at Manchester in October, 1902:—"The existing educational system of this country is chaotic, is ineffectual, is utterly behind the age, makes us the laughing-stock of every advanced nation in Europe and America, puts us behind, not only our American cousins, but the German and the Frenchman and the Italian."

A careful study of the early history of the Association leads me to the belief that the function I am now dwelling on was strongly in the minds of the founders; but be this as it may, let me point out how admirably the organisation is framed to enable men of science to influence public opinion and so to bring pressure to bear upon Governments which follow public opinion. Firstly, unlike all the other chief metropolitan societies, its outlook is not limited to any branch or branches of science. Secondly, we have a wide and numerous fellowship, including both the leaders and the lovers of science, in which all branches of science are and always have been included with the utmost catholicity—a condition which renders strong committees possible on any subject. Thirdly, an annual meeting at a time when people can pay attention to the deliberations, and when the newspapers can print reports. Fourthly, the possibility of beating up recruits and establishing local committees in different localities, even in the King's dominions beyond the seas, since the place of meeting changes from year to year, and is not limited to these islands. We not only, then, have a scientific Parliament competent to deal with all matters, including those of national importance, relating to science, but machinery for influencing all new councils and committees dealing with local matters, the functions of which are daily becoming more important. The machinery might consist of our corresponding societies. We already have affiliated to us seventy societies with a membership of 25,000. Were this number increased so as to include every scientific society in the Empire, metropolitan and provincial, we might eventually hope for a membership of half a million. I am glad to know that the Council is fully alive to the importance of giving a greater impetus to the work of the corresponding societies. During this year a committee was appointed to deal with the question; and later still, after this committee had reported, a conference was held between this committee and the corresponding societies committee to consider the suggestions made, some of which will be gathered from the following extract:

In view of the increasing importance of science to the nation at large, your committee desire to call the attention of the Council to the fact that in the corresponding societies the British Association has gathered in the various centres represented by these societies practically all the scientific activity of the provinces. The number of members and associates at present on the list of the corresponding societies approaches 25,000, and no organisation is in existence anywhere in the country better adapted than the British Association for stimulating encouraging, and co-ordinating all the work being carried on by the seventy societies at present enrolled. Your committee are of opinion that further encouragement should be given to these societies and their individual working members by every means within the power of the Association; and with the object of keeping the corresponding societies in more permanent touch with the Association they suggest that an official invitation on behalf of the Council

be addressed to the societies, through the corresponding societies committee asking them to appoint standing British Association sub-committees, to be elected by themselves, with the object of dealing with all those subjects of investigation common to their societies and to the British Association committees, and to look after the general interests of science and scientific education throughout the provinces and provincial centres. . . .

Your committee desire to lay special emphasis on the necessity for the extension of the scientific activity of the corresponding societies and the expert knowledge of many of their members in the direction of scientific education. They are of opinion that immense benefit would accrue to the country if the corresponding societies would keep this requirement especially in view with the object of securing adequate representation for scientific education on the Education Committees now being appointed under the new Act. The educational section of the Association having been but recently added, the corresponding societies have as yet not had much opportunity for taking part in this branch of the Association's work; and in view of the reorganisation in education now going on all over the country your committee are of opinion that no more opportune time is likely to occur for the influence of scientific organisation to make itself felt as a real factor in national education. . .

I believe that if these suggestions or anything like them—for some better way may be found on inquiry—are accepted great good to science throughout the empire will come. Rest assured that sooner or later such a guild will be formed because it is needed. It is for you to say whether it shall be, or form part of, the British Association. We in this empire certainly need to organise science as much as in Germany they find the need to organise a navy. The German Navy League, which has branches even in our colonies, already has a membership of 630,000, and its income is nearly £20,000 a year. A British Science League of 500,000 with a sixpenny subscription would give us £12,000 a year—quite enough to begin with. I believe that the British Association would be a vast gainer by such an expansion of one of its existing functions. Increased authority and prestige would follow its increased utility. The meetings would possess a new interest. There would be new subjects for reports. This magnificent, strong, and complicated organisation would become a living force, working throughout the year instead of practically lying idle for 51 weeks out of the 52 so far as its close association with its members is concerned. There is another matter which I should like to see referred to a committee. The British Association—which, as I have already pointed out, is now the chief body in the empire which deals with the totality of science—is, I believe, the only organisation of any consequence which is without a charter and which has not His Majesty the King as patron.

LACK OF UNIVERSITIES.

It is fully recognised that our universities, both in numbers and efficiency, are unequal to the modern needs of our people, so that not only our captains of industry, but those employed in the nation's work generally, do not secure a training similar to that afforded by other nations.

Chief among the causes which have brought us to the inferiority as compared with other nations in which we find ourselves are our carelessness in the matter of education and our false notions of the limitations of State functions in relation to the conditions of modern civilisation. Time was when the navy was largely a matter of private and local effort. William the Conqueror gave privileges to the Cinque Ports on the condition that they furnished 52 ships when wanted. In the time of Edward III., of 730 sail engaged in the siege of Calais 705 were "people's ships." All this has passed away; for our first line of defence we no longer depend on private and local effort. Time was when not a penny was spent by the State on elementary education. Again, we no longer depend upon private and local effort. The navy and primary education are now recognised as properly calling upon the public for the necessary financial support. But when we pass from primary to university education, instead of State endowment we find State neglect; we are in a region where it is nobody's business to see that anything is done. We in Great Britain have 13 Universities competing with 134 State and privately endowed universities in the United States and 22 State-endowed universities in Germany. I leave other countries out of consideration for lack of time and I omit all reference to higher institutions for technical training, of which Germany alone possesses nine of university rank, because they are less important; they instruct rather than educate, and our want is education. The German State gives to one university more than the British Government allows to all the universities and university colleges in England, Ireland, Scotland, and Wales put together. These are the conditions which regulate the production of brain-power in the United States, Germany, and Great Britain respectively, and the excuse of the Government is that this is a matter for private effort. If we grant that there was some excuse for the State's neglect so long as the higher teaching dealt only with words, and books alone had to be provided, it must not be forgotten that during the last 100 years not only has knowledge been enormously increased but things have replaced words, and fully equipped laboratories must take the place of books and class-rooms if university training worthy of the name is to be provided. There is more difference in size and kind between an old and a new university than there is between the old caravel and a modern battleship, and the endowments must follow suit.

What are the facts relating to private endowment in this country? In spite of the munificence displayed by a small number of individuals in some localities the truth must be spoken. In depending in our country upon this form of endowment we are trusting to a broken reed. If we take the twelve English university colleges, the forerunners of universities unless we are to perish from lack of knowledge, we find that private effort during 60 years has found less than £4,000,000—that is, £2,000,000 for buildings and £40,000 a year income. This gives us an average of £166,000 for buildings and £3300 for yearly income. What is the scale of private effort we have to compete with in regard to the American universities? In the United States during the last few years universities and colleges have received more than £40,000,000 from this source alone; private effort supplied nearly £7,000,000 in the years 1898-1900. Next consider the amount of State aid to universities afforded in Germany. The buildings of the new University of Strassburg have already cost nearly £1,000,000—that is, about as much as has yet been found by private effort for buildings in Manchester, Liverpool, Birmingham, Bristol, Newcastle, and Sheffield. The Government annual endowment of the same German university is more than £49,000. This is what private endowment does for us in England, against State endowment in Germany. But the State does really concede the principle; its present contribution to our universities and colleges amounts to £155,600 a year. No capital sum, however, is taken for buildings. The State endowment of the University of Berlin in 1891-92 amounted to £168,777. When, then, we consider the large endowments of university education both in the United States and Germany it is obvious that State aid only can make any valid competition possible with either. The more we study the facts the more do we find that we to a large extent lack both of the sources of endowment upon one or other, or both, of which other nations depend.

To compete on equal grounds with other nations we must have more universities. But this is not all—we want a far better endowment of all the existing ones, not forgetting better opportunities for research on the part of both professors and students. Another crying need is that of more professors and better pay. Another is the reduction of fees; they should be reduced to the level existing in those countries which are competing with us to, say, one-fifth of their present rates, so as to enable more students in the secondary and technical schools to complete their education. In all these ways facilities would be afforded for providing the highest instruction to a much greater number of students. At present there are almost as many professors and instructors in the universities and colleges of the United States as there are day students in the universities and colleges of the United Kingdom. The facts show that in this country we cannot depend upon private effort to put matters right. How about local effort? Anyone who studies the statistics of modern municipalities will see that it is impossible for them to raise rates for the building and up-keep of universities. The buildings of the most modern university in Germany have cost £1,000,000. For up-keep the yearly sums found, chiefly by the State, for German universities of different grades, taking the incomes of seven out of the 22 universities as examples, are:—

First class . .	Berlin . .	. £130,000
Second class . .	Bonn Göttingen	. 56,000
Third class . .	Königsberg Strassburg	. 48,000
Fourth class . .	Heidelberg Marburg	. 37,000

Thus, if Leeds, which is to have a university, is content with the fourth-class German standard, a rate must be levied

of 7*d.* in the pound for yearly expenses, independent of all buildings. But the facts are that our towns are already at the breaking strain. During the last 50 years, in spite of enormous increases in rateable values, the rates have gone up from about 2*s.* to about 7*s.* in the pound for real local purposes. But no university can be a merely local institution.

I have pointed out that in old days our navy was chiefly provided by local and private effort. Fortunately for us those days have passed away; but some 20 years ago, in spite of a large expenditure, it began to be felt by those who knew that in consequence of the increase of foreign navies our sea-power was threatened, as now, in consequence of the increase of foreign universities, our brain-power is threatened. The nation slowly woke up to find that its enormous commerce was no longer insured at sea, and that in relation to foreign navies our own had been suffered to dwindle to such an extent that it was no longer capable of doing the duty which the nation expected of it even in times of peace. At first this revelation was received with a shrug of incredulity and the peace-at-any-price party denied that anything was needed, but a great teacher arose.[2] As the facts were inquired into the suspicion changed into an alarm; men of all parties saw that something must be done. Later the nation was thoroughly aroused and with an universal agreement the principle was laid down that, cost what it might to enforce our sea-power, our navy must be made and maintained of a strength greater than those of any two possibly contending Powers. After establishing this principle the next thing to do was to give effect to it. What did the nation do after full discussion and inquiry? A Bill was brought in in 1888 and a sum of £21,500,000 was voted in order, during the next five years, to inaugurate a large shipbuilding programme, so that Britain and Britain's commerce might be guarded on the high seas in any event. Since then we have spent £120,000,000 on new ships and this year we spend still more millions on still more new ships. If these prove insufficient to safeguard our sea-power there is no doubt that the nation will increase them, and I have not heard that anybody has suggested an appeal to private effort.

How, then, do we stand with regard to universities, recognising them as the chief producers of brain-power and therefore the equivalents of battleships in relation to sea-power? In the United Kingdom we had until quite recently 13.[3] Of these, one is only three years old as a teaching university and another is still merely an examining board. In Germany there are 22 universities; in France, under recent legislation, 15; and in Italy, 21. It is difficult to give the number in the United States, because it is clear, from the tables given in the Report of the Commissioner of Education, that some colleges are more important than some universities, and both give the degree of Ph.D. But of universities in title we have 134. Among these there are 46 with more than 50 professors and instructors, and 13 with more than 150. I will take that figure. Suppose we consider the United States and Germany, our chief commercial competitors, and apply the Admiralty principle. We should require, allowing for population, eight additional universities at the very lowest estimate, some of which, of course, will be colleges promoted to university rank and fitted to carry on university work. Three of them are already named: Manchester, Liverpool, Leeds. Let us take this number and deal with it on the battleship condition, although a modern university on American or German models will cost more to build than a battleship. If our present university shortage be dealt with on battleship conditions, to correct it we should expend at least £8,000,000 for new construction and for the pay-sheet we should have to provide (8 × £50,000) £400,000 yearly for *personnel* and up-keep; for it is of no use to build either ships or universities without manning them. Let us say, roughly, capitalising the yearly payment at 2½ per cent., £24,000,000. At this stage it is important to inquire whether this sum, arrived at by analogy merely, has any relation to our real university needs. I have spent a year in making inquiries, as full as I could make them, of friends conversant with the real present needs of each of the universities, old and new. I have obtained statistics which would fill a volume, and personally I believe that this sum at least is required to bring our university system up to anything like the level which is insisted upon both in the United States and in Germany. Even Oxford, our oldest University, will still continue to be a mere bundle of colleges unless £3,000,000 are provided to enable the University, properly so-called, to take her place among her sisters of the modern world; and Sir Oliver Lodge, the principal of our very youngest university, Birmingham, has shown in detail how £5,000,000 can be usefully and properly applied in that one locality to utilise for the good of the nation the enthusiasm and scientific capacity which are only waiting for adequate opportunity of development.

How is this money to be raised? I reply, without hesitation, *Duplicate the Navy Bill of 1888-89*; do at once for brain-power what we so successfully did then for sea-power. Let £24,000,000 be set apart from one asset, our national wealth, to increase the other, brain-power. Let it be assigned and borrowed as it is wanted; there will be a capital sum for new buildings to be erected in the next five or ten years, the interest of the remainder to go towards increased annual endowments. There need be no difficulty about allocating money to the various institutions. Let each university make up its mind as to which rank of the German universities it wishes to emulate. When this claim has been agreed to, the sums necessary to provide the buildings and teaching staff of that class of university should be granted without demur. It is the case of battleships over again and money need not be spent more freely in one case than in the other. Let me at once say that this sum is not to be regarded as practically gone when spent, as in the case of a short-lived ironclad. *It is a loan* which will bear a high rate of interest. This is not my opinion merely; it is the opinion of those concerned in great industrial enterprises and fully alive to the origin and effects of the present condition of things. I have been careful to point out that the statement that our industries are suffering from our relative neglect of science does not rest on my authority. But if this be true, then if our annual production is less by only £2,000,000 then it might have been, having £2,000,000 less to divide would be equivalent to having £40,000,000 or £50,000,000 less capital than we should have had if we had been more scientific.

Sir John Brunner, in a speech connected with the Liverpool School of Tropical Medicine, stated recently that if we as a nation were now to borrow ten millions of money in order to help science by putting up buildings and endowing professors, we should get the money back in the course of a generation a hundredfold. He added that there was no better investment for a business man than the encouragement of science and that every penny he possessed had come from the application of science to commerce. According to Sir Robert Giffen, the United Kingdom as a going concern was in 1901 worth £16,000,000,000. Were we to put aside £24,000,000 for gradually organising, building, and endowing new universities, and making the existing ones more efficient, we should still be worth £15,976,000,000—a property well worth defending by all the means, and chief among these brain-power, we can command.

If it be held that this, or anything like it, is too great a price to pay for correcting past carelessness or stupidity, the reply is that the £120,000,000 recently spent on the navy, a sum five times greater, has been spent to correct a sleepy blunder, not one whit more inimical to the future welfare of our country than that which has brought about our present educational position. We had not sufficiently recognised what other nations had done in the way of ship-building, just as until now we have not recognised what they have been doing in university building. Further, I am told that the sum of £24,000,000 is less than half the amount by which Germany is yearly enriched by having improved upon our chemical industries, owing to our lack of scientific training. Many other industries have been attacked in the same way since; but taking this one instance alone, if we had spent this money 50 years ago, when the Prince Consort first called attention to our backwardness, the nation would now be much richer than it is and would have much less to fear from competition. Suppose we were to set about putting our educational house in order, so as to secure a higher quality and greater quantity of brain-power, it would not be the first time in history that this has been done. Both Prussia after Jena and France after Sedan acted on the view:—

> "When land is gone and money spent,
> Then learning is most excellent."

[2] Captain Mahan of the United States Navy, whose book, "On the Influence of Sea-power on History," has suggested the title of my address.

[3] These are Oxford, Cambridge, Durham, Victoria, Wales, Birmingham, London, St. Andrews, Glasgow, Aberdeen, Edinburgh, Dublin, and Royal University.

After Jena, which left Prussia a "bleeding and lacerated mass," the King and his wise counsellors, among them men who had gained knowledge from Kant, determined, as they put it, "to supply the loss of territory by intellectual effort." What did they do? In spite of universal poverty, three universities, to say nothing of observatories and other institutions, were at once founded, secondary education was developed, and in a few years the mental resources were so well looked after that Lord Palmerston defined the kingdom in question as "a country of damned professors."

After Sedan—a battle, as Moltke told us, "won by the schoolmaster"—France made even more strenuous efforts. The old University of France, with its "academies" in various places, were replaced by 15 independent universities, in all of which are faculties of letters, sciences, law, and medicine. The development of the University of Paris has been truly marvellous. In 1897-98 there were 12,000 students, and the cost was £200,000 a year. But even more wonderful than these examples is the "intellectual effort" made by Japan, not after a war, but to prepare for one. The question is, Shall we wait for a disaster and then imitate Prussia and France, or shall we follow Japan and thoroughly prepare by "intellectual effort" for the industrial struggle which lies before us? Such an effort seems to me to be the first thing any national or imperial scientific organisation should endeavour to bring about.

THE IMPORTANCE OF RESEARCH WORK.

When dealing with our universities I referred to the importance of research, as it is now generally acknowledged to be the most powerful engine of education that we possess. But education, after all, is but a means to the end, which, from the national point of view, is the application of old and the production of new knowledge. Its national importance apart from education is now so generally recognised that in all civilised nations except our own means of research are being daily more amply provided for all students after they have passed through their university career; and, more than this, for all who can increase the country's renown or prosperity by the making of new knowledge, upon which not only commercial progress, but all intellectual advance must depend. I am so anxious that my statement of our pressing, and indeed imperative, needs in this direction should not be considered as resting upon the possibly interested opinion of a student of science merely that I must trouble you with still more quotations. Listen to Mr. Balfour:—

> I do not believe that any man who looks round the equipment of our universities or medical schools or other places of education can honestly say in his heart that we have done enough to equip research with all the costly armoury which research must have in these modern days. We, the richest country in the world, lag behind Germany, France, Switzerland, and Italy. Is it not disgraceful? Are we too poor or are we too stupid?[4]

It is imagined by many who have given no thought to the matter that this research should be closely allied with some application of science being utilised at the time. Nothing could be further from the truth; nothing could be more unwise than such a limitation. Surely all the laws of nature will be ultimately of service, and therefore there is much more future help to be got from a study of the unknown and the unused than we can hope to obtain by continuing the study of that which is pretty well known and utilised already. It was a king of France, Louis XIV., who first commended the study of the *même inutile*. The history of modern science shows us more and more as the years roll on the necessity and advantage of such studies, and therefore the importance of properly endowing them; for the production of new knowledge is a costly and unremunerative pursuit.

Years ago we had Faraday apparently wasting his energies and time in playing with needles; electricity now fills the world. To-day men of science in all lands are studying the emanations of radium; no research could be more abstract; but who knows what advance in human thought may follow or what gigantic world-transforming superstructure may eventually be raised on the minute foundation they are laying? If we so organise our teaching forces that we can use them at all stages, from the gutter to the university, to sift out for us potential Faradays—to utilise the mental products which otherwise would be wasted—it is only by enabling such men to continue their learning after their teaching is over that we shall be able to secure the greatest advantage which any educational system can afford. It is now more than 30 years ago that my attention was specially drawn to this question of the endowment of research—first, by conversations with M. Dumas, the permanent secretary of the Academy of Sciences, who honoured me by his friendship; and, secondly, by my association with Sir Benjamin Brodie and Dr. C. E. C. Appleton in their endeavours to call attention to the matter in this country. At that time a general scheme of endowment suggested by M. Dumas was being carried out by M. Duruy. This took the form of the "École spéciale des Hautes Études"; it was what our fellowship system was meant to be—an endowment of the research of post-graduate students in each seat of learning. The French effort did not begin then.

I may here tell, as it was told me by Dumas, the story of Léon Foucault, whose many discoveries shed a glory on France and revived French industry in many directions.[5] In 1851, when Prince Napoleon was President of the Republic, he sent for Dumas and some of his colleagues and told them that during his stay in England, and afterwards in his study of the Great Exhibition of that year, he had found there a greater industrial development than in France and more applications of science, adding that he wished to know how such a state of things could be at once remedied. The answer was that new applications depended upon new knowledge and that therefore the most direct and immediate way was to find and encourage men who were likely by research in pure science to produce this new knowledge. The Prince-President at once asked for names; that of Léon Foucault was the only one mentioned during the first interview. Some time afterwards Foucault informed Dumas that the Prince-President had been discussing with him the possible improvement of French science and industry and had given him 200,000 francs, requesting him to do all in his power to aid the State. Foucault ended by saying that, on realising the greatness of the task thus imposed upon him, the responsibility seemed more than he could bear. In 1872 a society for the organisation of academical study was formed in England in connection with the inquiry into the revenues of Oxford and Cambridge, and there was a famous meeting at the Freemasons' Tavern, Mark Pattison being in the chair. Brodie, Rolleston, Carpenter, and Burdon-Sanderson were among the speakers and the first resolution carried was, "That to have a class of men whose lives are devoted to research is a national object." The movement died in consequence of the want of sympathy of the university authorities.[6]

In the year 1874 the subject was inquired into by the late Duke of Devonshire's Commission and after taking much remarkable evidence, including that of Lord Salisbury, the Commission recommended to the Government that the then grant of £1000, which was expended by a committee appointed by the Royal Society on instruments needed in researches carried on by private individuals, should be increased, so that personal grants should be made. This recommendation was accepted and acted on; the grant was increased to £4000, and finally other societies were associated with the Royal Society in its administration. The committee, however, was timorous, possibly owing to the apathy of the universities and to the general carelessness on such matters, and only one personal grant was made; the whole conception fell through. Meantime, however, opinion has become more educated and more alive to the extreme importance of research to the nation, and in 1891 a suggestion was made to the Royal Commission which administers the proceeds of the 1851 Exhibition that a sum of about £6000 a year available for scholarships should be employed in encouraging post-graduate research throughout the whole empire. As what happened is told in the Memoirs of Lord Playfair it is not indiscreet in me to state that when I proposed this new form of the endowment of research it would not have surprised me if the suggestion had been declined. It was carried through by Lord Playfair's enthusiastic support. This system has been at work ever since, and the good that has been done by it is now generally conceded. It is a supreme satisfaction to me to know that in this present year of grace the national importance of the study of the *même inutile* is more generally recognised than it was during the times to which I have referred in my brief survey; and, indeed, we students are fortunate in having the support of two members of His Majesty's Government, who two years ago spoke with no uncertain sound upon this matter, Mr. Balfour and Mr. Chamberlain:—

> Do we lack the imagination required to show what these apparently remote and abstract studies do for the happiness of mankind? We can appreciate that which obviously and directly ministers to human

[4] Nature, May 30th, 1901.

[5] See Proceedings of the Royal Society, vol. xvii., p. lxxxiii.

[6] See Nature, November and December, 1872.

advancement and felicity, but seem somehow or another to be deficient in that higher form of imagination, in that longer sight which sees in studies, which have no obvious, necessary, or immediate result, the foundation of the knowledge which shall give far greater happiness to mankind than any immediate, material, industrial advancement can possibly do; and I fear, and greatly fear, that, lacking that imagination, we have allowed ourselves to lag in the glorious race run now by civilised countries in pursuit of knowledge, and we have permitted ourselves so far to too large an extent to depend upon others for those additions to our knowledge which surely we might have made for ourselves.[7]

I would remind you that all history shows that progress—national progress of every kind—depends upon certain individuals rather than upon the mass. Whether you take religion, or literature, or political government, or art, or commerce, the new ideas the great steps, have been made by individuals of superior quality and genius, who have, as it were, dragged the mass of the nation up one step to a higher level. So it must be in regard to material progress. The position of the nation to-day is due to the efforts of men like Watt and Arkwright, or, in our own time, to the Armstrongs, the Whitworths, the Kelvins, and the Siemenses. These are the men who, by their discoveries, by their remarkable genius, have produced the ideas upon which others have acted and which have permeated the whole mass of the nation and affected the whole of its proceedings. Therefore what we have to do, and this is our special task and object, is to produce more of these great men.[8]

I finally come to the political importance of research. A country's research is as important in the long run as its battleships. The most eloquent teaching as to its national value we owe to Mr. Carnegie, for he has given the sum of £2,000,000 to found a system of endowments, his chief purpose being, in his own words, "to secure if possible for the United States of America leadership in the domain of discovery and the utilisation of new forces for the benefit of man." Here is a distinct challenge to Britain. Judging by experience in this country, in spite of the magnificent endowment of research by Mond and Lord Iveagh, the only source of possible competition in the British interest is the State, which certainly could not put the 1,8000th part of the accumulated wealth of the country to better use; for without such help both our universities and our battleships will become of rapidly dwindling importance. It is on this ground that I have included the importance of endowing research among the chief points to which I have been anxious to draw your attention.

THE NEED OF A SCIENTIFIC NATIONAL COUNCIL.

In referring to the new struggle for existence among civilised communities I pointed out that the solution of a large number of scientific problems is now daily required for the State service, and that in this and other ways the source and standard of national efficiency have been greatly changed. Much evidence bearing upon the amount of scientific knowledge required for the proper administration of the public departments, and the amount of scientific work done by and for the nation, was brought before the Royal Commission on Science presided over by the late Duke of Devonshire now more than a quarter of a century ago. The Commission unanimously recommended that the State should be aided by a scientific council in facing the new problems constantly arising. But while the home Government has apparently made up its mind to neglect the advice so seriously given, it should be a source of gratification to us all to know that the application of the resources of modern science to the economic, industrial, and agricultural development of India has for many years engaged the earnest attention of the Government of that country. The Famine Commissioners of 1878 laid much stress on the institution of scientific inquiry and experiment designed to lead to the gradual increase of the food-supply and to the greater stability of agricultural outturn, while the experience of recent years has indicated the increasing importance of the study of the economic products and mineral-bearing tracts. Lord Curzon has recently ordered the heads of the various scientific departments to form a board, which shall meet twice annually, to begin with, to formulate a programme and to review past work. The board is also to act as an advisory committee to the Government,[9] providing among other matters for the proper co-ordination of all matters of scientific inquiry affecting India's welfare. Lord Curzon is to be warmly congratulated upon the step he has taken, which is certain to bring benefit to our great dependency.

The importance of such a board is many times greater at home, with so many external as well as internal interests to look after—problems common to peace and war, problems requiring the help of the economic as well as of the physical sciences. It may be asked, What is done in Germany, where science is fostered and utilised far more than here? The answer is, There is such a council. I fancy, very much like what our Privy Council once was. It consists of representatives of the ministry, the universities, the industries, and agriculture. It is small, consisting of about a dozen members, consultative, and it reports direct to the Emperor. It does for industrial war what military and so-called defence councils do for national armaments; it considers everything relating to the use of brain-power in peace—from alterations in school regulations and the organisation of the universities, to railway rates and fiscal schemes, including the adjustment of duties. I am informed that what this council advises, generally becomes law. It should be pretty obvious that a nation so provided must have enormous chances in its favour. It is a question of drilled battalions against an undisciplined army, of the use of the scientific spirit as opposed to the hope of "muddling through." Mr. Haldane has recently reminded us that "the weapons which science places in the hands of those who engage in great rivalries of commerce leave those who are without them, however brave, as badly off as were the dervishes of Omdurman against the maxim-guns of Lord Kitchener." Without such a machinery as this, how can our ministers and our rulers be kept completely informed on a thousand things of vital importance? Some may say that it is contrary to our habit to expect the Government to interest itself too much or to spend money on matters relating to peace; that war dangers are the only ones to be met or to be studied. But this view leaves science and the progress of science out of the question. Every scientific advance is now, and will in the future be more and more, applied to war. It is no longer a question of an armed force with scientific corps; it is a question of an armed force scientific from top to bottom. Science will ultimately rule all the operations both of peace and war, and therefore the industrial and the fighting population must both have a large common ground of education. These, then, are some of the reasons which compel me to point out that a scientific council, which might be a scientific committee of the Privy Council, in dealing primarily with the national needs in times of peace, would be a source of strength to the nation.

To sum up, then, I have endeavoured to point out to you how the nation at present suffers from the absence of a powerful, continuous, reasoned expression of scientific opinion, urging that we shall be armed as other nations are, with efficient universities and facilities for research to uphold the flag of Britain in the domain of learning and discovery. I have also endeavoured to show that in addition to our many existing councils another is required to secure that the benefits which a proper coördination of scientific effort in the nation's interest can bring shall no longer be neglected. Let me also remind you that in 1859, when the late Prince Consort occupied this chair, he referred to "impediments" to scientific progress, and said, "they are often such as can only be successfully dealt with by the powerful arm of the State or the long purse of the nation."

[7] Mr. Balfour, Nature, May 30th, 1901.
[8] Mr. Chamberlain, Times, Jan. 18th, 1901.
[9] Nature, September 4, 1902.

CENTENARIANS.—At the meeting of the Long Ashton (Somerset) board of guardians held on August 25th it was reported that one of the recipients of outdoor relief named Honour Coleman, of Cleeve-in-Yatton, had recently celebrated her 102nd birthday. The oldest person in Somerset is Mrs. Eliza Jenkins, of Otterford, near Taunton, who on Jan. 1st, 1903, celebrated her 104th birthday.

THE CLIMATES AND HEALTH RESORTS IN THE DOMINION OF CANADA.—Under this title Dr. Guy Hinsdale has republished from the Transactions of the American Climatological Association, of which association he is secretary, a paper which he contributed to the association in 1892. Owing to its great size the climate of Canada is very varied, but many places in the Dominion are exactly suited to those seeking a place in which to recuperate their health. A glance at the temperature and rainfall tables will at once show the meteorological conditions which generally prevail. The illustrations to the pamphlet give the reader good ideas of the remarkably beautiful scenery of parts of Canada. The pamphlet is published by Messrs. John Bale, Sons, and Danielsson, of Oxford House, Great Titchfield-street, London, W.

An Address
on
SOME POINTS IN ABDOMINAL SURGICAL DISEASES.

Delivered before the Ashton-under-Lyne and District Medical Society

BY E. STANMORE BISHOP, F.R.C.S. ENG.

MR. PRESIDENT AND GENTLEMEN,—Abdominal diseases which require surgical interference may be roughly but very practically divided into two main groups, the one including those cases which require immediate action, and the other those in which some delay is not only permissible but often advisable. Perhaps of the two the former class are the most important and therefore, with your permission, we will discuss these first, reserving the latter until after, when if there is time, something may be said as to them.

Of the cases which require immediate interference there are two classes of most importance: first, those affecting the alimentary canal and, secondly, those affecting the female genital organs. Of the first, those affecting the alimentary tract are of two kinds: those of rupture of an ulcer, gastric, duodenal, enteric, or appendical, and those which depend upon some sudden interference with the blood-supply, as in strangulated hernia, whether internal or external, or in intussusception. In these cases one can scarcely operate too soon. The chances of success decrease with every hour. Gastric ulcer is estimated by Weir and Foote as affecting the population of Europe at the rate of from 4 to 5 per cent. Fiedler found ulceration or its scar in 20 per cent. in women and 1½ per cent. of men, out of 2200 stomachs examined post mortem. Comte estimated that perforation occurs in 14 per cent. of cases, and Barling says that 95 per cent. of patients after perforation certainly die if no operation is done and believes that there is decided doubt as to the 5 per cent. reported recoveries. Weir collected 77 cases of perforation from gastric ulcer. In 21 cases which recovered, the time elapsing before operation averaged 19 hours and in two-thirds of these it was less than 12 hours, whilst in 55 unsuccessful cases, the elapsed time averaged 43 hours and over 24 hours in two-thirds of these. Mayo collected 429 cases of gastric perforation. In 80 of these operation was done. In those operated on during the first 24 hours the mortality was 42 per cent., but of those done after that period over 70 per cent. died. In duodenal ulcer, Collin collected 262 cases, in 242 of which perforation occurred. 51 were operated upon, in 25 of which the lesion was recognised and closed. Of these, 13 patients underwent operation after 30 hours delay and all died; of 12 operated upon within that time eight survived, giving a mortality in the first case of 100 per cent., in the second of 33·3 per cent.

With regard to peritonitis arising from a perforated appendix, Berg has published a very instructive table showing the relation of cures after operation to the time which is allowed to elapse.

Table Showing the Relation of Cures after Operation to the Time Allowed to Elapse.

One day,	9	cases	with	five	cures	(55	per cent.)
Two days,	14	,,	,,	six	,,	(42	,,)
Three ,,	20	,,	,,	five	,,	(25	,,)
Four ,,	10	,,	,,	no	,,	(0	,,)

Success therefore in treatment of cases of perforation in any region of the alimentary canal depends upon their early recognition and operation. Cases of perforation left alone invariably end fatally. How is this all-important early recognition to be obtained? The answer to this question is really of more importance to the family medical attendant than to anyone else, as he always sees these cases first, and upon his action during the first few hours will depend the fate of the patient.

In order to illustrate this more effectively I will mention a case which I saw in consultation early this year with a very acute practitioner near Manchester. He told me before we saw the patient together that he had a man who was evidently dying, but there seemed no good evidence as to what was the matter with him. The medical adviser had been called to this man early on the morning but one before and found him in intense pain. The pain was, as usual, referred to the area of the solar plexus and after a hypodermic of morphia had been given and the patient was somewhat easier he elicited the following facts. The man was well on the evening before and during the day he had eaten a good dinner of which the rest in the house had also partaken without any bad results but which contained some things which were not very digestible. At night intense pain came on suddenly and he had passed a dreadful night, writhing on the floor with pain, and was so bad that his wife had feared that he would die before help could arrive. The pain had become generalised all over the abdomen but was relieved by the morphia. The abdomen was slightly distended and was rigid all over; the pulse was rapid (120) and the temperature was subnormal. He had taken some liquid food, some of which was rejected but not all. At night the pain returned and more morphia was injected with the same relief. On the next morning the pain returned again; he had spent a fair night and obtained some sleep. Morphia was again used and in the afternoon, as he seemed worse, I was sent for. When I saw him, about 5 P.M., he was sensible, free from pain, and the countenance was not particularly anxious, but the pulse was very intermittent and frequently ceased altogether for a few seconds; in the course of half an hour no pulse at all was felt at the wrist; the lips were pale and the tongue was dry. On exposing the abdomen it was found to be entirely rigid, distended to some extent, clear on percussion everywhere, the liver dulness still remaining, but lessened somewhat. It was but very slightly tender. Questions were replied to readily and the man was perfectly clear-headed. The hands and feet were cold and some perspiration was seen on the forehead. He admitted that for some months he had suffered from dull pain, which had come on an hour or two after food, had been felt chiefly on the right side, in front, beneath the ribs, and also behind between the shoulder blades. He had never vomited blood or food but his stools had occasionally been dark in colour, almost black. The bowels had been regular up to the time of seizure with pain and there had never been any jaundice. After consultation, in which a diagnosis of perforated duodenal ulcer was made, which was afterwards confirmed, we saw him again and found him, as I have said, with no pulse at the wrist and evidently unfit for any operation. He died soon after we left the house.

Duodenal, gastric, enteric, and appendical ulcers, all are amenable to operation, and food or other matters which have escaped into the peritoneum can be washed out of it with a fair prospect of a good result, as we have seen, if only the operation can be done at once, or within 24 hours; afterwards, operation has but little chance. Everything, therefore, depends upon early diagnosis. How is it to be made? It is evident that we cannot suggest laparotomy to everyone who complains of pain in the abdomen, however severe it may be. Persons differ too much in their tolerance of pain and their expressions regarding it for this symptom to carry much weight. Besides, as in this case, the patient can usually be induced to remember something which he has eaten within a reasonable time which might produce acute indigestion. Indeed, one's experience is that very few people indeed, except imaginary invalids who have no other idea in the world but coddling their stomachs, do not frequently and constantly eat things which are more or less risky. Inquiries, therefore, as to previous food, although perfectly necessary, may, if at all relied upon, as often mislead the examiner as put him upon the right scent.

Reference to text-books or monographs on this subject results in the enumeration of many symptoms: these are so vague and hesitating as to have little practical value. Here, for instance, is one taken at random. Speaking of perforation in gastric ulcer, the author says: "It is extremely important to be able to recognise this condition of peritonitis at the earliest possible moment. Palpation ought to show a little tenderness over the ulcer." But another author says that the whole abdomen is tender: how, then, can we localise the "little tenderness" which points to the locality of the ulcer? "Peritonitis sets in with a chill, a rise of temperature to 100° or 103°." Other authorities say that the temperature is lowered. "The patient lies with the knees drawn up and has the characteristic facies." In the case which I have described there was no characteristic facies and in others I have seen, where morphia has also been used, the

face has been quite placid and without anxiety. "The pulse is rapid and small—it is now that surgical relief is to be sought without delay."

Lowered or heightened temperature, quickened pulse, great pain, symptoms of collapse, drawn-up knees, and anxious countenance are all to be found also in severe colic, biliary, intestinal, or ureteral. Lately a good deal of stress has been laid upon tenderness by Treves and others, but tenderness, like pain, is a subjective sensation which can only be estimated by the patient himself and cannot be checked effectively by the examiner, so that not much efficient help in diagnosis can be gained from it. When I first wrote on this subject one of my critics summed up the whole question by declaring that no one symptom could be depended upon and that the sooner we recognised that all, or some, or none might be present the sooner we should be able to appreciate the true character of peritonitis. Imagine the lucid and confident state of mind of such a writer or of his disciples when face to face with such a case as I have detailed. But there is one thing which invariably and rapidly follows perforation and which is as certainly absent in acute dyspepsia, or mere colic of any kind, and that is acute peritonitis. This, I presume, will be granted. What is wanted, therefore, is the earliest possible reliable sign of acute peritonitis and this, if present, will give the key to the entire situation.

In order to act scientifically, in order to act with confidence in any emergency, we must previously have worked out some theory and have tested it as thoroughly as possible. All action is based upon theory, but that theory must be capable of demonstration as to its reasonableness and must be in accord with the facts as we know them. "The most valuable theories," says Fothergill, "are those which connect a number of facts in an easily remembered series." Let us see if we can construct such a theory from the facts available in such cases.

Hilton, in his "Rest and Pain," points out that in all joints the same nerves supply the lining—synovial—membrane, the muscles which move the joint, and the skin over it; that when any inflammatory change begins in the lining membrane, immediately and automatically, a reflex arc of nerve influence is excited through the spinal centres governing that arc and in consequence the muscles ordinarily moving that joint are thrown at once into tonic contraction in order to produce absolute rest to the joint surfaces. Our daily experience proves the truth of this. The first sign of morbus coxæ or of any acute synovitis is the rigidity of the muscles around. Now a joint is not necessarily composed of bone and cartilage, although these structures enter so generally into their construction that we have almost unconsciously come to consider them necessary components. In its essential definition a joint is a solution of continuity between structures, permitting of their movement the one upon the other, a series of muscles capable of producing such movement, and a lining membrane covering the moving surfaces which can secrete sufficient fluid to render such movement smooth, easy, and painless, with a nerve-supply arranged in such a manner as to connect these in their action.

Are not all these essentials present in the abdomen? We have the moving surfaces in the intestines and abdominal walls, the lining secreting membrane in the peritoneum, the muscles producing movement in the muscular walls of the intestine, and the muscular layer of the abdominal wall itself, whilst it could be easily demonstrated, had we time for it to-night, that the sympathetic system of nerves supplying the peritoneum is intimately and definitely related to the nerves supplying the muscles named. I have shown this elsewhere in detail. The abdominal cavity with the structures contained in it may therefore be looked upon as a large joint and the first and automatically present result of inflammatory changes in the peritoneum will be, and must be, *rigidity* of the muscles which ordinarily produce movement between the intestines and the abdominal wall. We cannot observe the rigid condition of the intestinal muscles, although we recognise their effect in the constipation produced, but we can, and do, recognise the rigidity of the muscular wall. It is, I think, the more important to emphasise this because this symptom of rigidity, though always, and I think I have shown necessarily, present in the early stage, is not persistent. The abdominal peritoneum has an immense absorbing surface. Decomposable material, mixed in such cases with many bacteria, rapidly produce septic toxins which are absorbed into the general system, and general sepis means paralysis of these muscles as well as the rest of the general musculature, so that the main, and often the only, time to appreciate it is at the very time when we most want such a key-sign—that is, in the earliest stages of acute peritonitis. Such want of persistence in cases where the whole patient becomes septicæmic will account for its absence in some cases where the observer has seen them late and has not found this symptom, although post-mortem evidence of acute peritonitis was abundantly present. One word of caution. The practitioner who sees 50 patients a day and who, coming hurriedly in from his open trap on a wet day, places a cold, wet hand on his patient's abdomen, will find acute peritonitis in every patient, and having, as he assumes, demonstrated the absurdity of any reliance upon this sign, will speak always contemptuously of its value; but those who test it fairly will, I am sure, find it to be as I have described it, the key-sign upon which they can depend. It should also be looked for before any morphia is given.

The foregoing remarks will apply, it will be seen, to perforation of the intestine in any region—duodenal, gastric, enteric, or appendical, and slighter and more localised degrees of it will be seen in localised peritonitis, such as occurs, for instance, in peri-appendicitis where a localised peritonitis surrounding a diseased appendix produces localised rigidity of the muscles covering it—a rigidity which will not be present in other regions of the abdomen. A writer in the *New York Medical Journal* recently claimed that rigidity follows the introduction of irritant material into the peritoneum even before peritonitis could have time to develop. I am not inclined to quarrel with this statement, which indeed only enforces the value of this sign for our purpose, but it seems to me a very difficult one either to prove or to disprove since we cannot accurately determine the point of time at which any inflammation actually commences, and especially is this the case in peritonitis. For all practical purposes it may be considered the earliest available symptom of commencing acute peritonitis. It is not seen in the chronic forms, as, e.g., in tuberculous peritonitis. I have seen and demonstrated to others rigidity in several cases where peritonitic inflammation and its results were found post mortem, but there is another occasion on which this sign, or rather its absence, is of very great importance. After laparotomy everyone knows the anxiety of the first few (from three to five) days, during which, if peritonitis is going to supervene, it will make its appearance. The fact of having one certain sign to rely upon as evidence renders the absence of this sign a tremendous comfort to all concerned. A case upon which I operated three years ago very well illustrates this point.

The patient was a married woman, aged 57 years, who had had flooding at every period for 18 years. A large multinodular fibroid uterus weighing 7 pounds 13 ounces, with two of the masses in calcareous degeneration, was removed on May 17th. No rigidity followed. All went well for 11 days when the rectum was found to be full of rocky fæces. The bowels had acted regularly both before and after the operation, but the colon had evidently been gradually compressed by the tumour with the result that it had become sacculated, and these recesses were now emptying themselves. It was very tedious clearing the bowel, but this was at last accomplished. A rigor followed with a temperature of 105° F. and high temperature and quick pulse persisted until June 1st when an abscess was opened above the left Poupart's ligament spreading behind the pubis. Over the abscess itself the parts were rigid but the general abdominal wall was soft and supple. For several days we watched carefully for any further rigidity but none appeared, although both pulse and temperature continued high for over a fortnight. The patient perfectly recovered and has been to America and Paris since and is at present in perfect health.

To return to perforations of the alimentary canal. After this digression a point worth noting in cases of perforating duodenal ulcer was brought out by some bacteriological investigations by Cushing in the Johns Hopkins Hospital in 1899 and by some cases narrated at the Pathological Society of New York in 1900. This was that matters escaping from the duodenum were apt to flow down outside the ascending colon towards the cæcum and so to produce symptoms greatly simulating appendicitis. The rigidity in these cases was sometimes confined to the muscles of the right side and on opening the abdomen there was an absence of foul odour such as is present when the appendix is concerned; whilst the perforation, being seated so high up in the intestinal tract, the infection is milder and the bacteria are fewer and less

virulent than they are when escaping from the cæcum or the attached appendix.

It is tempting to refer still further to appendicitis, but I must pass on to strangulated hernia, an old and well-worn subject which need not detain us except that it may be well to emphasise one fact. Of course, we all know that the real danger in both strangulated hernia and intussusception is not in the obstruction to the fæcal circulation but in the interference with the blood-supply. I wonder whether we are also as alive to the fact that the *distension* of the abdomen is a sign that that interference has reached a very dangerous point—a point from which recovery may not follow, not because the gut is paralysed in the sense that it cannot carry on its fæcal contents, but because stasis of the blood-current in the vessels pertaining to that segment has set in and may be followed by gangrene. Looked at in this way—and Kader's experiments have shown us that this is the correct view—it becomes abundantly evident that in no case should we wait until the abdomen becomes at all distended, since the chances of success are thus so severely handicapped. Moreover, the dangers and difficulties of operation are tremendously increased. But a little more time may usefully be devoted to the consideration of the next condition—viz., that of intussusception.

There are two points in connexion with this subject which are of great interest, the one referring to diagnosis, the other to treatment. The information to be found in text-books on this subject does not, I fear, help much in practical diagnosis. You will find one authority giving all the classical symptoms—sausage-shaped mass in the abdomen, passage of blood and mucus in the stools, sudden pain and vomiting, and an os uteri-like body to be felt per rectum. What actually happens in these cases we all know. We are sent for hurriedly to see a child who has been suddenly awakened out of his sleep or suddenly attacked after eating some deleterious thing—children are always eating things they ought not—by pain in his stomach and some vomiting. We are in the middle of surgery hours, perhaps, and a lot of people are waiting, consequently we do not see the child for perhaps an hour, and by that time the youngster is asleep again, breathing quietly. The mother is full of some discovery which she has made, as that some elder child has given him a cake, or something of the sort, and immediately on knowing this she has given him some castor oil or Gregory powder, which she mercifully (!) happened to have in the house. She and a neighbour or two are quite certain that there is nothing more the matter—perhaps we look at the abdomen, perhaps in our hurry to get back again we do not. If we do, and even if we feel it more or less carefully, we are not much wiser since, if we are gentle and the child sleeps on, as the mother begs we will allow him to do—"for he is so tired out, poor thing"—there is no mass of any kind to be felt and the abdomen is quite supple. We inquire if any blood has been passed and are told that that has not been the case. We call the next day and hear that the pain came on again soon after we left and has been repeated once or twice. The bowels have acted slightly, but some irresponsible person has thrown the stool away, and so far as the mother knows—she very evidently knows nothing about it but does not like to admit her ignorance—it was like any other stool. We examine the child again, and this time we pass a finger up the rectum and find nothing there, certainly no os uteri-like mass. The child begins to cry and perhaps to retch. We are suspicious, but what evidence have we? When the child begins to cry the mother takes him and begins to try to quiet him, calling us names to the child probably in order to soothe his ruffled feelings. We decide to wait and very possibly give him some carminative with compound tincture of camphor, or Dover's powder, which at our next visit has made him much easier, and the mother is quite sure that if we only give him some more he will soon be all right. Later the child becomes much worse and someone else is called in or we ask for a consultation. In either case possibly nothing more is discovered until after the child's death, or we hear, to our chagrin, that the case was one of intussusception, has undergone an operation, which was too late, and the child is dead. Now, this is not a pleasant state of things for anyone, neither for the parents, the child, nor the medical attendant; nor is it by any means too pleasant for the man who discovers it later, operates and, probably in the opinion of the parents kills the child. The parents will certainly blame somebody and they are often more catholic in their censure than the unlucky first attendant is inclined to believe.

Can we, by any discussion now, render such a catastrophe less likely to happen? Are there any symptoms we can trust, or is there any new way of looking at the old ones that may throw new light upon them? Let us see. In any intussusception of the intestine, as we all know, one portion of the bowel is placed inside another, so making three layers. Peristalsis of one layer in a previously healthy child can scarcely be appreciated by an observer's hand placed outside the abdominal wall; peristalsis of three layers superimposed the one upon the other, each more internal layer stiffening and rendering more prominent the one above besides stimulating the contraction to a greater pitch than normal, can be appreciated, and usually is with fair ease. The mere superposition of three coats of intestine, when not in a state of active peristalsis, however, does not necessarily render that segment appreciable. It is evident, therefore, that if we are in search of such a thickened segment, our best, and often our only, time for its discovery, is when it is firmly contracted upon itself. That is, of course, when the pain of such contraction is at its worst, and when the child is crying violently, and that is the time when in my experience we most often hurriedly turn the child over to his mother to be soothed and petted into peace again. Then, when he is quiet once more, when both he and the muscular contractions of his bowel are exhausted, we examine again and, failing to find any trace of its presence, decide that it does not exist in the case before us.

Now, again, if you will think of the formation of an intussusception, you will recognise that there is another symptom which is often missed which must necessarily be present in every case. It is never found in mere colic, the only other real alternative in cases such as I have sketched, and is therefore pathognomonic, and consequently of immense value in deciding the diagnosis, that is a bloody exudation with mucus. An intussusception means more than the mere entry of one segment of intestine into another, it means also the compression of the mesenteric vessels to a serious extent. Of these vessels, as everywhere else, the arteries are the most resistant, the vein walls are by far the more easily closed by compression from without. Long then before blood has ceased to be pumped into the entering segment, its escape has been impeded or altogether prevented. The capillaries are filled to bursting point, they must give way and blood be effused into the lumen of the gut. Besides this the mucous glands of the part are unduly stimulated to secretion during this period of engorgement of their nutrifying vessels, and must therefore secrete mucus at a quicker rate and in larger amount. We may take it as proved that bloody mucus will always be present in intussusception. How, then, do we come to miss it? Often enough you will have noted that after one or two stools, which may have been thrown away without your seeing them, the action of the intestines below the point of obstruction appears to be in abeyance, no further action of the bowels can be obtained. Possibly there may have been none at all from the first. If you give an enema there is always the possibility that any slight appearance of blood in the water which returns may be so diluted that it may escape notice, or, again, it may be put down to possible injury of the delicate lining membrane of the rectum by the instrument itself, thus introducing a worrying element of doubt. The sphincter is often tightly contracted in these cases, and if the enema is given by a neighbour, or by a nurse in whose gentleness and skill you have not the greatest confidence, some slight tearing of the mucous membrane is very likely to occur. The same tendency to tight contraction will, however, prevent the voluntary escape of the little pool of fluid which you may confidently expect if the case is one of intussusception will be banked up inside, and this very contraction will insure your finding it if, as I advise, you gently introduce your finger within, when on its withdrawal it will be smeared with blood which will be only diluted with mucus, and therefore readily appreciated. Now, I think you will agree that we have here two unmistakeable symptoms upon which we can rely—which are not found in any other condition with which intussusception in children can be confounded, which must necessarily and automatically be present in every case, and which only need to be looked for in a definite way—a way upon which text-books place no emphasis, in order to clear up and to make certain our diagnosis upon secure and scientific grounds.

In concluding what I have to say about diagnosis, I would

simply add that the search for the end of the intussusception per rectum appears to me a mere waste, and a most dangerous waste, of time. Consider how far the intussusception must have travelled in, say, the ilio-cæcal variety, which is the most common, before it could possibly come within reach of the finger, and ask yourselves what possible chance would that child have of its life if we are to wait for any such sign. I would expunge this most dangerous symptom from all text-books.

In October, 1901, I saw a case in consultation with two partners in a practice in Manchester. It was that of a child aged 10 months, and there was considerable difference of opinion in the minds of the two men who had both seen the case as to its character. One considered it to be, as it was, a case of intussusception, the other had never been able to feel any tumour and thought the symptoms observed merely due to improper food. The child had been in perfect health until Oct. 1st, when it became fretful and complained of general abdominal pain. As the child had had something which might have disagreed the mother promptly administered some castor oil with the result that the bowels which up to that time had acted regularly now ceased to act and neither flatus nor stool had passed up to the fourth day when I saw him. Dover's powder had been given to allay the pain and on examination he was lying quietly, perfectly conscious, and apparently at ease. The child permitted rectal examination without resistance. The pulse was good, normal in character, rhythm, and rapidity. After a while the child began to cry and a mass could then be felt in the right iliac fossa which became hard and soft alternately, with fairly long intervals. When the finger, which had discovered no mass in the rectum, was withdrawn, it was streaked with blood and mucus. Maunsell's operation was performed and this intussusceptum was removed.

Just one word as to treatment. If you will examine this specimen I think that you will see further that the bowel has not merely been pushed into its sheath, the intussuscipiens, but has been *screwed* in, if I may be allowed the term, by its own peristalsis, modified as it is in all cases by the drag of the mesenteric attachment. Would any force directly applied from below, as by injection of air, oil, or water have *unscrewed* it? I fancy that we are all too much possessed by that graphic simile of the glove finger and are inclined to think of the intussusception as simply directly driven forward in a straight line, so that an opposing force acting also in a straight line will be efficient in reducing it. I confess to being very doubtful of these reported cases of success with such treatment and believe that now we have the simple and straightforward operation of Maunsell we cannot too early avail ourselves of this safe and certain way out of our difficulties, safe and certain, that is, if used within a reasonable time and before the bowel has been too much altered by compression of its mesentery.

Similar conditions of collapse, with acute pain, often accompanied by vomiting, with rapid, thin pulse and great pallor are seen in women during the child-bearing period. You have two classes—one marking the rupture of a tubal pregnancy, the other the sudden twisting of the pedicle of a previously existing and slowly growing tumour. The danger in the first case is from the loss of blood, and this, too, requires prompt operation if the patient's life is to be saved—that is, of course, if the rupture takes place, as it most frequently does, into the peritoneal cavity; if rupture into the broad ligament occurs, matters are not so urgent. Such a case was admitted into the Ancoats Hospital on Sept. 14th, 1897. The patient was 28 years old and had been married for 11 years. She had had four previous confinements and one miscarriage, the last child being born six and a half years previously, the miscarriage occurring at three months five years before. Menstruation had been regular after this until July, 1897, when she had amenorrhœa of eight weeks' duration; some discharge of blood came on August 21st and had never stopped until admission; no shreds or membranes had passed; there was constant gnawing pain which appeared suddenly, lasted for five or six hours, and went off gradually, during which time the discharge increased. The temperature was 100·2° F. on admission. On Sept. 26th the uterus was found to be of nearly normal size, but with an open os and a split cervix. Behind it in Douglas's pouch was a soft elastic mass, extending towards the left side, separable from the uterus. On the right side, the broad ligament could be defined but not on the left. A pulsating artery could be felt in the fornix. On Oct. 4th sudden pain and collapse were present. The abdomen was opened on the same day and a small multilocular cyst of the right ovary was found. The tube on the same side had lost its fimbriæ, its abdominal ostium was closed and there was some swelling of it. Below was a collection of clots which were cleared out; spread over these was the remains of the left tube which had ruptured near its uterine end. The tube was much enlarged and contained an adherent clot. All being removed the abdomen was closed. Quick and perfect recovery followed.

Here is another case. The patient, aged 36 years, was admitted on Oct. 27th, 1902. She was married at the age of 19 years and had had 11 children with one miscarriage. The last child was born in April, 1902; she suckled this child until its death four months later. She had menstruated twice since, the last period being in September, the first week in the month. This period may have been a day or two late. There was for the first time great pain at the right side in the back which passed off as the flow became established; the pain passed down both thighs nearly to the knees. Since September she had had a feeling as though menstruation was about to commence every day. On Oct. 23rd she felt well on rising and was doing her housework, when she was suddenly attacked by intense pain in the epigastrium so severe as to render her unconscious; on recovery she was cold, perspiring, with nausea, but no vomiting; the pain continuing until admission to hospital, always in the epigastrium, but occasionally passing into the right iliac region. This pain was intensified from time to time, when she became faint, with cold sweating. On admission the abdomen was distended, the pulse was rapid and shallow, and some dulness was present in the right iliac region. Operation was performed on the same evening. On opening the peritoneum large quantities of bright fluid blood mingled with black clots escaped as if under tension. The right tube contained a mass of about the size of an orange; this was tied and removed, bleeding, however, still continued. After a little search the omentum, which had been adherent over the tube, was drawn out from above the bladder, to which spot it had retracted, and a bleeding vessel in its torn extremity was discovered and tied. This omentum had evidently formed part of the sac wall. Two pints of saline solution were transfused into the left cephalic vein, and another pint beneath the breasts during the operation. All clots being removed the abdomen was closed. Convalescence was retarded by an empyema which formed in the right pleura; this was opened and drained and ultimately the patient recovered perfectly.

In passing it may be noted how this case confirms the observations of Muscatello who showed by injection of carmine into the peritoneum of animals that this cavity drains away foreign material mainly by currents which carry all such matters towards the lymphatics of the diaphragm and through them into the mediastinal glands. It is evident that the lymphatics in this case did their work well and saved the peritoneum, but that they themselves suffered in the process and that the bacteria, whilst harmless in that cavity, because so rapidly removed, were yet virulent enough when they reached the mediastinum to produce pleuritis and consequent empyema.

Of course, the important point in all such cases of ectopic gestation is to anticipate rupture and to remove the sac whilst still intact and this, I believe, can generally be done. Such an operation bears the same relation in point of risk to that undertaken after giving way of the sac that removal of the appendix during a period of rest does to the same operation when suppuration has occurred. The points in diagnosis here upon which stress, I believe, should be laid are the occurrence of abnormal bloody discharges in a woman with some of the signs of early pregnancy, who has had a missed or even slightly delayed period, and who complains of pain in either or both thighs extending towards the knee in the course of the obturator or anterior crural nerve. Such a woman should be examined bimanually without loss of time, and if a small mass is found, as it probably will be, by the side of the uterus, abdominal section should be done without delay. I have operated on six such cases with the happiest results, removing the gestation sac and tube intact and with prompt recovery in each case. Vaginal section has lately been greatly lauded in these cases as in others. I have never attempted to remove an ectopic pregnancy in this way and I consider it highly dangerous. One case occurred in Manchester not long since in the practice of another operator in which the hæmorrhage was uncontrollable and the patient died.

The other condition in which sudden pain with vomiting, collapse and quickened pulse, requiring immediate operation may occur in women is found in cases where a tumour, previously known to exist, which has been growing slowly and probably giving but little trouble, suddenly rotates so as to twist the pedicle by which its blood-supply is obtained. Such an occurrence, so far as my experience goes, is very apt to occur soon after parturition, when the sudden alteration in the relations of visceral structures due to the removal of the large mass formed by the pregnant uterus appears to favour the twisting of any pedunculated growth present. It may also be due, as in the case I will relate, to a fall or even in others to no apparent cause at all. Luckily here we have usually some previous history of an abnormal mass to suggest the condition likely to be found. Here, again, it is the veins of the pedicle which are most and soonest compressed. Blood is still pumped into the growth which cannot return, the veins and capillaries become engorged, and hæmorrhage takes place into the tumour mass, especially if it contains a cavity or is of loose texture. The tumour usually rapidly increases in size. Such a tumour I now show you. It was removed from a woman, aged 36 years, who had been aware of the presence of a tumour in the abdomen for some years. One day after a fall downstairs she became suddenly faint and on recovery complained of intense pain over the site of the tumour, which rapidly—within a day or two—increased in size. On admission the abdomen was found greatly distended and tender, the tenderness being most marked over the tumour itself. There was some free fluid in the abdominal cavity. Abdominal section was performed and this tumour was removed. There were three complete turns of the pedicle, which sprung from the right broad ligament. The tumour itself, instead of presenting the usual pearly-grey appearance, was dark brown, almost black in colour. It was removed on the third day from the occurrence and the patient perfectly recovered.

Your patience has enabled me to glance at the conditions in the abdomen which most frequently require immediate surgical interference; there is no time to speak of the many others which also appeal for surgical aid, but with less imperative urgency. May I, however, in closing mention one more case which emphasises to my mind the necessity of looking upon the pelvis and abdomen as one great cavity, and the futility of specialising, as so many are inclined to do, in one single set of female complaints. This was the case of a woman, aged 35 years, who had complained for over 20 years of pain in the left side of the pelvis. This pain was always worst at the menstrual periods. Acting upon this fact, and upon the belief that the ovaries were somewhat larger than normal, abdominal section had been done the year before, and both ovaries had been removed. The pain, however, still continued. Examination per rectum resulted in the discovery of a ureteral calculus wedged in its vesical end, and this stone having been removed through a suprapubic opening in the bladder, the pain disappeared with it. Concentration of the operator's mind upon any one set of organs is a mistake. It must occasionally lead to similar errors.

UPON THE VIRULENCE OF THE BACILLUS OF BOVINE AND HUMAN TUBERCULOSIS FOR MONKEYS.

BY ALLAN MACFADYEN, M.D. EDIN.

(From the Laboratory of the Lister Institute of Preventive Medicine.)

THE experiments forming the subject of this note were undertaken with the view of ascertaining in how far the human and bovine strains of the tubercle bacillus agree or differ as regards their infective properties for the monkey. The methods adopted were mainly feeding experiments, as the particular object of the investigation was to determine to what extent the digestive tract is capable of acting as a channel of systemic invasion for tubercle organisms derived either from cattle or from man. There is naturally an entire absence of direct experimental evidence with regard to the possible transmission of the bacillus of bovine tuberculosis to the human subject by means of articles of food. It was therefore considered that the experiments might furnish at the same time indirect evidence upon this important and debateable point. It is in young children that, generally speaking, such bacterial infective processes are liable to occur on account of the anatomical structure of the intestinal wall and its lymphatic system. A food tuberculosis is most likely to appear in children by the consumption of unsterilised dairy milk. One may, indeed, go so far as to say that as regards tuberculosis and its transmissibility through food channels the danger that may exist is peculiar to children at the period in which a milk diet predominates.

The monkey is the species of animal in which results comparable in character to those possibly occurring in man can be obtained. The animals that were employed were, with one exception, rhesus monkeys. The experiments were arranged to favour an infection and, at the same time, to reproduce, as far as was possible, the natural conditions as they occur in man. In the first instance the experiments were made upon young monkeys of an average age of from 12 to 18 months and in the second instance the infective material was almost entirely administered per os. It should also be mentioned that in the feeding experiments neither artificial cultures of the specific organisms nor organisms which had been subjected to a passage through other intermediate and susceptible animals were used. The natural material, proved to contain tubercle bacilli, was employed in all the feeding experiments—viz., the tuberculous tissues of cattle and the tuberculous sputum of man. The experiments in this respect differ from those carried out by certain other observers. It was considered that the test would be of a more conclusive character if the tubercle bacilli as they exist in a natural soil were employed and that a possible source of fallacy through cultural and other modifying factors would be eliminated. Precautions were at the same time taken to insure that the animals were free from tuberculosis and control monkeys of the same age and source were kept under observation in the course of the experiments. 18 monkeys were employed. The experiments consisted in inoculation with bovine tubercle bacilli and in feeding with bovine and human tuberculous material. In how far under such conditions is the relative infectivity of the bacillus of bovine and human tuberculosis demonstrable? The following summary will indicate the results that were obtained.

A.—INOCULATION EXPERIMENTS.

1. Bonnet monkey. An emulsion of the infected glands of a guinea-pig which had died after inoculation with bovine tuberculosis was injected intraperitoneally. Death occurred 19 days after the injection. Post mortem the mesenteric glands were caseating; nodules were found in the spleen, the liver, and the lungs. Tubercle bacilli were present in the lesions.

2. Rhesus monkey. The animal was injected intraperitoneally with the same material as was used for Monkey 1. Death occurred 31 days after the inoculation. Post mortem there was a general tuberculosis.

3. Rhesus monkey. Subcutaneous inoculation with bovine tuberculous material was performed. The animal died 32 days after the inoculation. Post mortem there was a general tuberculosis. Tubercle bacilli were found in the organs.

B.—FEEDING EXPERIMENTS.

(*a*) *With bovine tubercle bacilli.*—1. Rhesus monkey. The animal was fed with about five cubic centimetres of the emulsified udder of a cow proved to contain tubercle bacilli. It died ten days after the feeding. The result was negative owing to premature death.

2. Rhesus monkey. The animal was fed with a small portion of the emulsified udder of a cow. The result was negative as death occurred in two days.

3. Rhesus monkey. The animal was fed with a small portion of a tuberculous udder and nine days subsequently received a second feed. It died 33 days after the first feeding. Post mortem the mesenteric glands were found to be caseating and there were nodules in the spleen and the liver. Tubercle bacilli were found in all the affected organs. No intestinal lesions could be detected.

4. Rhesus monkey. The animal was fed with an emulsion of bovine tuberculous glands and 14 days subsequently with a portion of a diseased udder. It died 35 days after the first feeding. Post mortem nodules were found in the spleen, the liver, and the lungs. The mesenteric glands were enlarged. Tubercle bacilli were found in the lesions. No tuberculous lesions were observed in the intestine.

5. Rhesus monkey. The animal was fed with tuberculous udder. A second and third feed of similar material was given seven and 12 days after the first. Death occurred 45

days after the first feeding experiment. Post mortem nodules were found in the spleen, the liver, and the lungs and the mesenteric glands were enlarged. There were no lesions in the intestine. Tubercle bacilli were found in the affected organs.

6. Rhesus monkey. The animal was fed with a small portion of affected cow's lung and on the ninth and thirty-fifth days a second and third feed were given of similar material. Death followed 57 days after the first feeding. Post mortem general tuberculosis was found but there were no lesions in the intestine.

7. Rhesus monkey. The animal was fed with emulsified lesions of bovine lung. Only one feeding experiment was made. Death took place 65 days subsequently. Post mortem there was general tuberculosis but there were no intestinal lesions. Tubercle bacilli were found in the affected tissues.

(*b*) *With human tubercle bacilli.*—1. Rhesus monkey. The animal was fed with tuberculous sputum. Diarrhœa ensued and death took place after ten days. There were no visible post-mortem signs.

2. Rhesus monkey. Tuberculous sputum was given per os. Diarrhœa supervened and death occurred in ten days. There were no post-mortem signs.

3. Rhesus monkey. Tuberculous sputum was given and the animal died in two days. No post-mortem signs were present.

4 and 5. Rhesus monkeys. The animals were fed with non-tuberculous sputum from a healthy individual in order to control the results in Monkeys 1, 2, and 3. No injurious effects occurred and both animals were alive and well three months after feeding with normal sputum.

6. Rhesus monkey. The animal was fed with normal sputum without ill-effect. Subsequently tuberculous sputum was given and it died within 30 days. Post mortem there was general tuberculosis and bacilli were found in the lesions. Guinea-pigs inoculated with emulsions of the glands and the spleen died from tuberculosis. Tuberculous ulcers were present in the intestine of the monkey.

7. Rhesus monkey. The animal was fed twice with tuberculous sputum and died at the end of 43 days. Post mortem nodules were found in the liver and the spleen. The mesenteric glands were enlarged and distinct intestinal lesions were present. Guinea-pigs after inoculation with the diseased tissues died from tuberculosis in from four to six weeks.

8. Rhesus monkey. The animal was fed once with tuberculous sputum and died 65 days later. Post mortem there were general tuberculosis and ulceration of the intestine. Tubercle bacilli were present in the various lesions.

In the above experiments the monkey proved susceptible to an inoculation with the bacillus of bovine tuberculosis either directly or after one passage through the organism of the guinea-pig. A certain number of the animals died in two or in ten days after feeding with bovine and human tuberculous material. Normal human sputum did not produce this effect and the result suggested some form of intoxication. The monkey fed thrice, twice, or once with the bovine material succumbed to a general tuberculosis in about from one to two months, and fed with the human material the same results and fatal effect were produced in about the same period of time. The young monkey proved to be equally susceptible to the bovine and human strains of the tubercle bacilli. The striking difference in the effects produced occurred in the digestive tract. Intestinal lesions were found in the case of every monkey that had been fed with human tuberculous material, whilst none of the monkeys fed with the bovine material presented any evidence of tuberculous ulcers in the intestine. Within the limits of these experiments it would appear that virulent bovine tubercle bacilli may pass through the intestinal wall in large numbers without any detectable lesion of the gut being produced. It would also appear that a food tuberculosis can be as readily brought about by the bovine as by the human strain of the tubercle bacillus in the young monkey.

Chelsea, S.W.

SOUTH DEVON AND EAST CORNWALL HOSPITAL.—As a result of the recent Hospital Saturday collections in Plymouth the sum of £372 has been handed over to the treasurer of the South Devon and East Cornwall Hospital.

BROMIDE OF ETHYL AS A GENERAL ANÆSTHETIC AND AS A PRELIMINARY TO ETHER.

BY WILLIAM R. HUGGARD, M.A., M.D. R.U.I., F.R.C.P. LOND.

FOR several years bromide of ethyl has been in daily use as a general anæsthetic with dentists in Switzerland and in Germany. It is regularly used as a preliminary to ether anæsthesia by Professor Kocher of Berne and probably by other surgeons. On the continent bromide of ethyl seems to have passed through the first and second stages of indiscriminate laudation and of almost total banishment and to have reached the final stage of routine employment in suitable cases and in proper doses. In England, however, the use of bromide of ethyl is still extremely restricted. In these circumstances a few notes concerning the drug may be of interest.

Eleven years ago in Vienna I saw it given several times to young people for short operations, such as the removal of adenoids. The rapid anæsthesia, its short duration, the quick return to consciousness, and the absence of any unpleasant effects were very striking. At that time the reaction from the total disuse of the drug was beginning. I did not, however, personally employ it until about four years ago, when, having occasion to give an anæsthetic for Professor Kocher, I administered, in accordance with his wish, bromide of ethyl as a preliminary to ether anæsthesia. As soon as the patient was under the influence of the bromide of ethyl—less than a minute—ether was substituted. The bromide of ethyl anæsthesia passed quietly and rapidly into ether anæsthesia and the patient was ready for operation almost immediately. On the few occasions since when I have given bromide of ethyl alone or followed by ether the result has been most satisfactory and free from any unpleasant symptom. The advantages of this method of ether administration—its rapidity and the absence of struggling—are so obvious that the question turns mainly on its safety. When I first employed this method Professor Kocher told me that it had been for some time in use at Berne and that bromide of ethyl administered by inhalation in a single dose of from 15 to 30 grammes was free from risk, but that prolonged administration or repeated doses were dangerous. He writes in reply to my question whether he still uses this method, under date May 13th, 1903: "Nearly always I give bromethyl first and ether afterwards. I am very satisfied indeed with the rapid anæsthesia I get with it. I have never had any death nor even disagreeable symptoms. We give from 15–30 grammes at the time (for one dose). Only with *very* weak and anæmic people, especially very young children, I prefer giving ether from the beginning." He mentions further that he has been using this plan for nearly ten years.

In looking over the literature of the subject one is struck by the fact that deaths from bromide of ethyl anæsthesia appear to have occurred chiefly, if not altogether, some years ago before the sources of danger were understood and I do not happen to have seen a notice of any death since 1897. Owing to the occurrence of several deaths in the early days of the use of bromide of ethyl the drug had practically dropped out of use and in Gurlt's statistics for 1890–91 at the German Surgical Congress it is reported to have been used only 27 times out of a total number of 24,625 instances of anæsthesia. In 1894 Gurlt reports that bromide of ethyl was used in 2700 instances, as compared with 2000 instances the previous year. Reviewing the mortality from various anæsthetics from 1890 to 1897, Gurlt gives the comparative death-rate as follows:—

Chloroform	...	...	...	...	1	in	2039 administrations.
Ether	...	...	...	...	1	,,	5090 ,,
Billroth's mixture (chloroform, ether, and alcohol)	...				1	,,	3807 ,,
Bromethyl	...	...	...	...	1	,,	5228 ,,
Ether and chloroform	...	...			1	,,	7594 ,,
Pental	...	...	...	...	1	,,	213 ,,

At the time of the report pental appeared to have been completely discarded. The accounts given of bromide of ethyl by various observers show the necessity for caution in regard to several points, such as the purity of the drug, the dose and mode of administration, and the cases suitable.

Care must also be taken not to confound it with bromide of ethylen.

In regard to purity the most important point is the liability of the drug to undergo decomposition through exposure to light or air. It appears, also, that in the presence of a flame the vapour is decomposed, the excessively irritating vapours of free bromine being liberated. Impurities are apt to be present in the commercial article. From Dr. Kelly's excellent paper on Bromide of Ethyl Anæsthesia in the *British Medical Journal* of August 30th, 1902, p. 588, I give a passage quoted from Mr. J. P. Gilmour: "During the past three years I have examined 50 specimens of bromide of ethyl (bromethane) for Dr. A. B. Kelly, with the following results: 30 samples (60 per cent.) were utterly unfit for anæsthetic purposes owing to the presence of impurities due either to contamination in the process of manufacture or to decomposition by reason of age, presence of moisture, or exposure to light. Of the 50 specimens examined, 25 (50 per cent.) contained free hydrobromic acid; 2 (4 per cent.) free bromine; 20 (40 per cent.) had an odour of garlic due to the presence of phosphoretted hydrogen; 40 (80 per cent.) showed the presence of amyl and ethylene compounds; and 10 (20 per cent.) contained sulphur compounds." Dr. Kelly adds that Messrs. Duncan and Flockhart are now able to supply an absolutely pure preparation.

Pure bromide of ethyl is a colourless liquid with an ethereal odour, free from garlic-like smell. Its specific gravity is from 1445 to 1450 and its boiling point is from 100·4° to 104° F. In Martindale's "Extra-Pharmacopœia" the specific gravity is erroneously given as 1419 and the boiling point as 105° F. The garlic-like smell of some impure specimens, which Mr. Gilmour ascribes to phosphoretted hydrogen, is said by Loebisch in Eulenburg's "Real-Encyclopädie" to be due to ethyl sulphide. To avoid confusion some chemically related bodies may be placed in comparison: Bromide of ethyl, C_2H_5Br; bromide of ethylen, $C_2H_4Br_2$; bromide of methyl, CH_3Br; and bromoform, $CHBr_3$. Bromide of ethylen and bromide of methyl are highly toxic when inhaled. Bromide of ethylen administered in mistake for bromide of ethyl is responsible for at least three deaths. Bromide of ethyl, known variously as bromethyl or ether bromatus, should be sent out by the manufacturer in hermetically sealed brown bottles, each containing only enough for a single administration and if any is left over it should not be used. The amount to be used at a single administration is now generally placed at from 10 to 30 grammes or by measure from two to six fluid drachms. 15 grammes measure exactly 10·5 cubic centimetres, or roughly three fluid drachms. More than one warning, however, has been given that 30 grammes (six fluid drachms) is too large a dose and may occasionally give rise to unpleasant symptoms, such as collapse and cyanosis, and that from 10 to 15 grammes is the largest amount that is needful or advisable. Most writers agree that prolonged anæsthesia by means of bromethyl is to be avoided and that if necessary the anæsthesia is to be continued with ether or chloroform.

The usual mode of giving bromide of ethyl is by means of a mask covered with impermeable cloth. The mask should fit closely so as to exclude the air. Most authorities recommend that the entire amount to be administered should be poured at once on the mask and given at one dose. When the raised arm falls the patient is ready for any short operation. The inhalation is discontinued as soon as the patient is anæsthetised. This usually occurs within from half a minute to a minute and the patient wakes up in from one to three minutes. The face flushes moderately but the colour is not otherwise affected. The pulse, as a rule, is unaltered or slightly quickened. According to Silk the tension is much lowered. If anæsthesia lasting more than two or three minutes is required the bromide of ethyl mask is withdrawn the moment narcosis is established and the ether mask is immediately substituted. The bromide of ethyl anæsthesia then passes rapidly into ether anæsthesia without any struggling stage. Amongst the cases that are unsuitable for bromide of ethyl anæsthesia are very young children, very weak and anæmic persons, the subjects of Bright's disease or of fatty or otherwise degenerated heart, and alcoholic patients. Alcoholics are apt to become excited and do not readily go "under." As to vomiting there is great discrepancy, its occurrence varying in the statistics of different observers from 1 in 400 to 15 per cent. and even to 66 per cent. Dr. Kelly, who has the highest vomiting record, ascribes this result partly to the tender age of the majority of the patients; partly to the fact that a very large proportion of his operations were for the removal of adenoids or tonsils, involving some bleeding into the throat or mouth; and partly to the disregard in dispensary practice of injunctions as to abstinence from food before operation. Sickness, when it occurs, is most usually after the anæsthesia is over.

Another drawback of bromide of ethyl anæsthesia is that the muscles do not usually become relaxed. For this reason in operations on the mouth a gag is inserted before the operation is begun. A period of excitement, sometimes violent, has occasionally been noted after the patient wakes. Hankel in 1897 had collected 21 cases of death. Three of these occurred in from 21 to 30 hours and one seven days after the anæsthesia. In two or three other cases transient fainting attacks or collapse appeared some time after the operation. More than a third of these deaths were due to causes that would be avoided nowadays, such as excessive doses (60, 130, and 180 grammes), prolonged administration, impure or decomposed bromide of ethyl, or fatty heart. Respecting the remaining cases I have not sufficient information to form an opinion. In spite of its drawbacks pure bromide of ethyl in proper doses properly administered to suitable cases appears to be at least as safe as ether.

Davos Platz.

ON THE DETECTION OF LEAD IN URINE AND POST-MORTEM SPECIMENS.

BY J. W. MELLOR, D.SC.,
AND
FRANK SHUFFLEBOTHAM, M.A., M.B., B.C. CANTAB.

THE detection of mineral poisons in organic matter is in many cases complicated by the fact that the metal is so intimately associated with the organic matter as to resist the action of the regular solvents. The organic matter must in consequence be first broken up in order that the metal may be extracted by the proper solvent. Boucher[1] found that the lead was retained by organic matter so tenaciously that mere carbonisation of the organic matter was not sufficient. The lead can only be extracted by the solvent when the carbon is completely burnt to ash. There are two objections to this incineration. 1. It is extremely difficult to oxidise all the carbon because the inorganic salts fuse and spread over the surface of the carbon protecting the latter from the oxygen of the air. 2. The high temperature necessary for the oxidation of the carbon is sufficient to volatilise some of the lead. This renders the method untrustworthy when dealing with small quantities of the metal. Fresenius and von Babo[2] oxidised the organic matter by boiling with a mixture of potassium chlorate and hydrochloric acid. Hydrochloric acid is not a good solvent for lead. It is necessary to filter the solution while hot in order to prevent the deposition of lead chloride on the filter. This method is said to give good results and the amount of lead may be determined by the electrolytic process of Lehmann.[3] We have sought for lead in the kidney of Case 1 (the notes on which are given below) by the potassium chlorate and hydrochloric acid method, but the results were not very satisfactory. The process also occupied a considerable amount of time and required a good deal of attention. Pouchet[4] proposed to destroy the organic matter by fusion with potassium hydrogen sulphate. Nikitin and Igefesky[5] treated the material with ten times its weight of concentrated sulphuric acid. From two to five days' boiling are said to be necessary for the complete destruction of the organic matter. Villiers[4] employed a mixture of nitric acid and potassium permanganate. This, when followed by a treatment with a mixture of nitric and sulphuric acid, was found by Denigès[4] to give very good results. Orfila[5] used ordinary nitric acid, but that is not sufficient for the dissolution of the lead. We found that a simple treatment of the organic matter with fuming nitric acid, as indicated below, gave very satisfactory results.

[1] Boucher: Annales de Hygiène, vol. xli.
[2] Fresenius and von Babo: Liebig's Annalen, vol. xlix., p. 287, 1844.
[3] Lehmann: Zeitschrift für Physiologische Chemie, vol. vi., p. 1.
[4] Denigès: Bulletin de la Société Chimique de Paris, Series 3, vol. xxv., No. 22.
[5] Orfila: Journal de Chimie Médicale, p. 339, 1842.

Kidney.—A piece of kidney of 20 cubic centimetres capacity was cut up into about a dozen pieces. These were placed in an evaporating basin and about 50 cubic centimetres of fuming nitric acid were poured into the dish. Dense brown fumes of nitrogen oxides were evolved. When the action had subsided (in from two to three minutes) the dish was placed upon a sheet of asbestos and allowed to simmer over the Bunsen flame for about an hour. If the frothing appears in danger of running over the sides of the dish stirring with a glass rod or removal of the flame for a short time may be necessary. 25 cubic centimetres of the fuming acid were added at intervals of a quarter of an hour and this process was repeated three times. The destruction of the organic matter was so complete that the whole of the piece of kidney passed into complete solution. The solution was then evaporated down to a few cubic centimetres, neutralised with caustic soda, filtered, and treated with hydrogen sulphide. A dark-brown precipitate of lead sulphide was obtained. With potassium chromate a yellow precipitate of lead chromate was obtained with the same specimen of kidney which gave a negative result with the $KClO_3$-HCl method of destroying the organic matter. Our reagents, dishes, &c., were then examined with a blank test, but we found no lead.

Urine.—We then sought the presence of lead in the urine of Cases 2, 3, and 4 (see below). Half a gallon of urine was evaporated down to dryness in each of two basins. In one basin the residue was heated until it was charred. Both residues were then treated separately with fuming nitric acid as just described. The uncharred residue passed into solution and on cooling deposited a white sediment. The mother liquor was neutralised and tested in the usual way. A brown precipitate of lead sulphide was obtained in Case 2, while in Case 3 a well-marked black precipitate was obtained. The urine of Case 4 gave a negative result. The charred residue did not pass completely into solution and the tests for lead were not so well defined as when the residue was uncharred. This shows that care must be taken to prevent charring of the residue during evaporation.

CASE 1.—The patient was a man, aged 35 years. He had worked in lead processes all his life and had been a glost placer for 15 years. He was incapacitated from work for the ten months previous to his death. He first showed symptoms of plumbism two and a half years previous to his fatal illness, when he was affected with an illness similar to a violent bilious attack. He vomited and suffered from pains in the head. The pains recurred once a month and afterwards they were more frequent. Dr. R. H. Read of Hanley attended the patient during the last illness, the duration of which was a fortnight, and he found him suffering from symptoms of irritant poisoning affecting his nervous and digestive systems. The patient gradually became worse. The lower portion of the bowel became absolutely paralysed, and epileptiform convulsions supervened. Hiccough was a marked symptom. The cerebro-spinal canal was punctured in the lumbar region and 15 cubic centimetres of fluid were withdrawn with a view of relieving the convulsions, but it was without avail. At the post-mortem examination it was found that there was a marked blue line on the gums and there was evidence of chronic meningitis and of sclerosis of the brain tissue itself. There were ecchymoses in the mucous membrane of the stomach. The middle part of the bowel was distended with gas and the lower portion was very much contracted and filled with scybala. Both kidneys were granular, the left markedly so. The vermiform appendix was healthy. There was some congestion at the base of both lungs. The liver, heart, and spleen were perfectly healthy.

CASE 2.—The patient was a man, aged 24 years. He had been a house painter for the last 11 years. He had suffered from obscure symptoms of pains in the stomach, lassitude, and headache. He was clean in his habits but drank more alcohol than was good for him. He had a marked blue line on the gums. There was no albuminuria and no constipation. Since he changed his occupation to paper-hanging he has been quite well.

CASE 3.—The patient was a man, aged 33 years, who had worked in the lead all his life, first in the sagger house and afterwards as a glost placer. He suffered from paralysis of the arms and colic, and was away from work for 11 days. He was pronouncedly anæmic and the blue line on the gums was well shown. There was albuminuria and the optic disc was normal.

CASE 4.—The patient was a man, aged 66 years. He had been a glost placer for 40 years, but for the last seven years had been a caretaker. While working with lead he suffered from two attacks of colic. He also had several attacks of muscular rheumatism and for a great number of years had had chronic bronchitis. The blue line on the gums was still seen, although he had been away from the lead so long.

Conclusions.—We consider the fuming nitric acid test as employed by us to be superior to the tests we have mentioned at the beginning of this paper on account of its greater delicacy, easy manipulation, and the short time required to carry out the test. It is obvious that this process can be easily adapted to the usual methods for quantitative determinations.

We thank the Headmaster of the Newcastle-under-Lyme High School for placing the resources of the chemical laboratory at our disposal.

Newcastle-under-Lyme.

A CASE OF UMBILICAL CALCULUS.

BY J. R. HARPER, M.R.C.S. ENG., L.R.C.P. LOND.,
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With a Note on its Histology by

C. G. SELIGMANN, M.B., M.R.C.P. LOND.

THE patient was a man, aged 46 years, who had been a soldier. When in Egypt in 1882 he had a severe attack of cholera; other than that he had always enjoyed good health. In the first week of July, 1902, he was worried with a slight purulent discharge from the umbilicus, around the circumference of which for about a quarter of an inch was a moist weeping eczema. He complained of no pain, only of the discomfort which was occasioned by his shirt sticking to his abdomen. There was no offensive smell from the discharge. A simple local application relieved him and for a few days he was quite comfortable. About ten days after, however, in lifting a cask, he seems to have strained himself and to have hurt his left side. At first he did not pay much attention to it, but finding that he was getting worse he again presented himself for treatment. It was then found that he had a good deal of tenderness and muscular rigidity in the left iliac region. He was ordered home to bed and hot fomentations were applied. In a few days it became apparent that an abscess was forming in the abdominal wall which was draining through the umbilicus, the discharge from which was most offensive. The man became acutely ill, rapidly losing flesh and being worn out with the pain and the discharge from the navel.

On July 26th two incisions were made into the abscess, which now reached from the umbilicus to Poupart's ligament on the left side, one incision being made immediately to the left of the umbilicus and at the same level and the other just on the outside of the left linea semilunaris. A large quantity of very offensive pus was evacuated and the abscess cavity was found to extend to Poupart's ligament on the left side. At the bottom of the cavity behind the rectus muscle a stone was found of about the size of a walnut. This was forwarded to Dr. C. G. Seligmann whose report is given below. By August 25th the wounds were well healed and the patient had much improved in health. The patient seems to have suffered no pain or inconvenience whatever until suppuration commenced. He is an intelligent man and says that he can only account for it by assuming that it must have arisen from neglect while on active service, when he was several weeks without having a chance of thoroughly washing himself or of changing his clothes.

The literature of umbilical calculus is so scanty that it seems worth while recording this case. The text-books of surgery make no mention of it; the only references are apparently two cases—one published by Mr. S. G. Shattock, which is referred to below, and another recorded by Mr. Dean in the "Anomalies and Curiosities of Medicine" (Gould and Pyle)

Report by Dr. SELIGMANN.—The specimens received consist of two irregular masses of a brownish colour. The larger mass is roughly conical with a truncated apex and measures about 14 millimetres in its chief diameter

and weighs 426 milligrammes. The smaller mass, which weighs 20 milligrammes, is more nearly spherical and about 8 millimetres in diameter. Besides these there is a thin irregularly rectangular flattened mass of a shining white colour, roughly 12 millimetres long by 7 millimetres broad, with a soft smooth surface that was almost lustrous when first examined. On exposure this has become somewhat shrunken and in parts tinged with brown. The smell of all these specimens is extremely offensive and almost faecal in character. Both the brownish masses were soft, pitting readily on pressure with the finger-nail and being easily crushed between the fingers. On examining a portion of the interior of the smaller mass microscopically it was found to consist of short, rather fine hairs for the most part of a brownish colour, a few badly formed cholesterine plates, a number of masses consisting of broken and compressed epithelial cells, and some fragments of woody vegetable tissue which it can be definitely asserted is derived from a conifer, the whole being mixed with and held together by a more or less granular ground substance. The flattened mass above referred to consisted entirely of a few cholesterine plates and many old, badly preserved epithelial squamæ, deformed by mutual pressure and cemented together by a small quantity of an apparently structureless material. The flat shining surface of this, which could be picked off with a finely pointed forceps in irregular layers (as it is sometimes possible to pick a wafer to pieces), suggests stratification of the squamæ of which it is composed and that these might originally have represented the peripheral part of the cavity in which the larger masses formed.

Of the nature of the specimens there can be little doubt. They are excellent examples of the somewhat rare formations known as umbilical calculi which consist of deformed and wrinkled epithelial scales often intermixed with fine hairs. The presence of woody tissue in the midst of one of the masses is interesting, but other foreign bodies have been found before in this position; thus Mr. Shattock has described a case in which the nucleus consisted of a mass of cotton fibre. The same authority has in the following few lines summed up the natural history of such concretions:[1] "These calculi ..... have plainly arisen as accumulations of the epidermis and hair shed into the umbilical depression, the orifice of which had become obstructed, possibly from a local inflammation such as is at times associated with eczema of the part."

A CASE OF SPLENIC ANÆMIA.

BY GEORGE PEACOCKE, M.D. DUB., F.R.C.P. IREL.,
ASSISTANT PHYSICIAN, ADELAIDE HOSPITAL, DUBLIN;
THOMAS E. GORDON, M.B. DUB., F.R.C.S. IREL.,
SURGEON, ADELAIDE HOSPITAL;
AND
J. ALFRED SCOTT, M.D. DUB., F.R.C.S. IREL.,
PATHOLOGIST, ADELAIDE HOSPITAL.

ON June 8th, 1902, a man, aged 45 years, was admitted into the Adelaide Hospital, under the care of one of us (Dr. G. Peacocke). His family history revealed nothing of importance and until the commencement of his present trouble he had been a perfectly healthy man. The history of his illness is very brief. He does not remember when he first felt any symptoms, but thinks that for the six months previously to admission to hospital he had been gradually getting weaker, less able for his work, and easily made breathless by exertion. He also felt what he described as a "gurgling pain" in the left side and at intervals had rather sharp paroxysmal pain in the same side. His abdomen, too, had slowly been increasing in size. So little did his symptoms trouble him that it was not until about three weeks before admission to hospital that he consulted a medical man, who on discovering a tumour in his abdomen advised him to go to Dublin without delay.

His appearance when seen by Dr. Peacocke was not suggestive of any serious mischief. He was a well-nourished man; the skin of his face, bronzed by constant exposure, perhaps hid the anæmia which was present. His pulse was regular, of good volume, and 84 per minute. The temperature was normal, the heart sounds were healthy, and the lungs were normal. On examining the abdomen a large prominent tumour was seen occupying almost the entire left side. On palpation it was smooth on the surface, but a distinct friction rub could be felt. The lower end was rounded and extended to within two fingers'-breadth of the crest of the ilium; the upper end was lost under the costal arch. A distinct notch was palpable on the anterior edge close to the umbilicus. The tumour did not move on respiration nor was it tender to the touch. Percussion gave a uniformly dull note and the friction rub so easily felt was very distinct on auscultation. The urine was acid (specific gravity 1024) and contained a trace of albumin. A blood count made on June 11th gave the following result: red blood corpuscles, 4,250,000 per cubic millimetre; hæmoglobin, 60 per cent.; and leucocytes, 1 in 1000 red blood corpuscles. A differential enumeration of the latter showed eosinophiles, 4 per cent.; polymorpho-nuclear leucocytes, 39 per cent.; mononuclear leucocytes, 4 per cent.; lymphocytes, 53 per cent. As a result of this examination it was evident that the case was not one of spleno-medullary leucocythæmia. Other causes of splenic enlargement—i.e., syphilis, malaria, cirrhosis of the liver, malignant disease, and tuberculosis—were easily excluded and Dr. Peacocke therefore came to the conclusion that the case was one of splenic anæmia. The only treatment, according to the literature of the subject, that afforded any hope of success was splenectomy. Dr. Peacocke therefore called in the assistance of his surgical colleague, Mr. T. E. Gordon.

Note by Mr. GORDON.—On June 27th, 1902, I opened this patient's abdomen by a long incision through the left rectus muscle. I found the enormous spleen free from adhesions on its outer surface, and the few omental attachments at the lower end were easily separated. The division of the splenic ligaments proved both difficult and dangerous. There was nothing of the nature of a pedicle, for the reflection at the hilum measured fully six inches vertically. The real difficulty, however, was due not to this but to the fact that I could not turn over the spleen towards the right in order to bring into view the lieno-renal ligament with the splenic vessels which lie in it. This was owing to posterior adhesions and to the great bulk of the spleen itself. It was then necessary to pass the needle from in front and unfortunately in doing so I injured a large branch of the splenic vein. The resulting hæmorrhage was appalling, and had not Mr. F. T. Heuston, who was assisting me, promptly compressed the vessels the patient would have died. This compression Mr. Heuston maintained until I had divided the remaining attachments between clamps and removed the spleen. I passed separate ligatures round each clamp and a silk ligature including all. There remained some bleeding points high up in the under surface of the diaphragm. As time was a matter of much importance, for the patient was much collapsed, I thought it best to pack the cavity with gauze and to close the greater part of the abdominal wound as quickly as possible. I introduced a large drainage-tube through a stab puncture in the loin.

I think I have stated all of importance relative to the operation and the after-treatment does not require detailed description. The gauze plugs were a source of some anxiety. I began by removing them very gradually—one or two strands each day—but in the end I was obliged to get on more rapidly as suppuration had occurred about them. The patient left hospital on August 16th and on the 24th he took a walk of ten miles. Had it not been for the unfortunate wounding of the splenic vein the removal of this enormous spleen would not have been difficult.

Note by Dr. J. A. SCOTT.—The spleen when removed showed a general enlargement with much the same shape as when normal. When laid on a table on the convex side it became slightly flattened and measured 12 inches long, eight inches wide, and four inches at its thickest part. It weighed eight pounds two ounces. The capsule was very considerably thickened in a few places on the surface. In the other parts it did not appear to the naked eye to be abnormal. Section showed it internally to be fairly firm and much paler than normal. Some dark marks or lines which gave a marbled surface to the section was all that could be seen of the spleen pulp. The lighter portions were round spots almost regularly one millimetre in diameter. These covered the whole surface between the lines of the spleen pulp, and to the naked eye or with a pocket lens appeared to be the Malpighian corpuscles.

Microscopical examination showed that the Malpighian corpuscles were enlarged until they touched each other. The

[1] S. G. Shattock: Some Anatomical Rarities, Transactions of the Pathological Society, vol. li., 1900, p. 282.

spleen pulp was absent. Special staining showed a number of red corpuscles at the junction of, and diffusing slightly into, the edge of the enlarged Malpighian corpuscles, these being the cause of the dark line visible to the naked eye. Careful examination showed that there was no increase of the trabeculæ or the reticular connective tissue, the only connective tissue increase being found in the patches of old perisplenitis.

The general appearance suggested lymphadenoma rather than any other form of splenic enlargement. This view is still more probable when the condition of the blood before and after the operation is taken into account. On June 11th, a few days after the admission to hospital, an examination was made as already described. The general estimation was repeated on the 23rd and showed a further increase in the intensity of the anæmia but was otherwise similar. The red blood corpuscles numbered 3,500,000 per cubic millimetre; hæmoglobin was 50 per cent., and the white blood corpuscles were 1 in 1000 red. These showed a marked decrease in the total white blood corpuscles and specifically a greater fall in the leucocytes than the lymphocytes, a condition much more like Hodgkin's disease than other diseases involving the spleen.

Subsequently to the removal of the spleen on June 27th two further examinations were made during the patient's stay in hospital. On July 12th there were found red blood corpuscles, 3,750,000 per cubic millimetre; hæmoglobin, 62 per cent.; and white blood corpuscles, 6300 per cubic millimetre, or 1 in 600 red. On August 12th a blood-count gave the following results: Red blood corpuscles, 4,400,000 per cubic millimetre; hæmoglobin, 75 per cent.; and white blood corpuscles, 6300 per cubic millimetre, or 1 in 600 red. This showed a marked improvement in the number of white blood corpuscles and suggested at least that the disease was localised in the spleen and that the former excess of lymphocytes came from the increased lymphosed tissue in that organ. During a short visit to Dublin on Jan. 10th, 1903, another count was made, with the following result: Red blood corpuscles, 4,400,000 per cubic millimetre; hæmoglobin, 85 per cent.; white blood corpuscles, 6600 per cubic millimetre, or 1 in 666 red; eosinophiles, 12 per cent.; polynuclear leucocytes, 61 per cent.; mononuclear leucocytes, 6 per cent.; and lymphocytes, 21 per cent. The lymphocytes in this latter count had a much larger amount of protoplasm than usual, and merged into the large mononuclear varieties, all connexion varieties being seen, rendering the counting rather difficult. The increase of the eosinophilous cells was the only noticeable departure from normal.

The following short extract from a letter received from the patient on Dec. 22nd, 1902, describes his general condition six months after the operation: "Since I left hospital I cannot say I have had an hour's sickness. I am up every morning at six o'clock and do all the knocking about and marketing of the farm as well as ever I did. I am ploughing lea land for the last nine or ten days and don't find it doing me any harm. The discharge is now stopped nearly a month, and I have also increased in weight over one and a half stones since I came home." But in March, 1903, the patient wrote saying that he was troubled with indigestion, had a poor appetite, and a burning pain in the stomach after food. He also stated that there was no enlargement of any glands and that the wound was quite healed and gave no trouble. In June of this year I received information from his medical man that our patient had died, the cause of death not being mentioned.

A CASE OF RUPTURE OF THE ŒSOPHAGUS FROM AN ACCIDENT.

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INSTANCES of rupture of the œsophagus due to sudden increase of the internal pressure from the act of vomiting are but seldom met with—indeed, such an occurrence has been described as one of the rarest of accidents. So infrequent is it that since the publication of the papers on this subject by Bowles and Turner[1] and by McWeeney[2] in 1900, I have been unable to find any record of such a case in the literature. The following case, therefore, which was brought into St. George's Hospital on April 1st, 1903, deserves to be recorded, the rupture in this instance being, as will be seen, due to an accident which caused a sudden increase of pressure analogous to the act of vomiting.

The patient, a man, aged 27 years, was found unconscious in the street by the police, having been thrown from a horse and smelling strongly of alcohol. On admission he was deeply comatose and breathing stertorously. On the right side of the forehead was a jagged wound two inches long, at the bottom of which a depressed fracture could be felt. There was extensive ecchymosis of the right orbit pushing the eyeball forwards and there was bleeding from the nose. The right pupil was widely dilated and the left was contracted. The left arm was slightly stiff, but the limbs on the right side were flaccid. Soon after admission Mr. Herbert Allingham operated, turning back a large flap and exposing an extensive comminuted fracture of the frontal and right temporal bones. The dura mater was lacerated and some of the brain substance was protruding. The depressed bone was removed and much blood which oozed up from the base of the brain was evacuated. Five hours later the patient was still deeply comatose and sweating profusely. The breathing was noisy but not stertorous and the pupils still preserved the same inequality. Altered blood and food stuff had been vomited several times. Eight hours after the operation the patient died from respiratory failure, having become very cyanosed during the last ten minutes of life. The temperature shortly before death was 106 6° F.

At the necropsy, which I made 24 hours later, the body being well frozen, there were in addition to the operation wound extensive hæmorrhages into the lids of both eyes with œdema of the conjunctivæ and slight abrasions on the left side of the face, but no external signs of injury elsewhere. In the upper part of the chest wall in front "surgical" emphysema was present in a moderate degree, but it did not extend up on to the face. The left pleura contained about a pint of fluid and semi-solid masses, evidently food, which had a sour odour of beer, and the membrane itself had lost its lustre; the right pleura was normal. The lungs were congested and œdematous and at the left base were small superficial hæmorrhages under the pleura. In the heart, which was slightly dilated, there was a patch of ecchymosis in the upper part of the interventricular septum on the left side. At the lower end of the œsophagus just above the diaphragm was a longitudinal rupture of the wall on its posterior aspect, one and a half inches long, which communicated directly with the left pleural cavity. There was no sign of a previous lesion at the site of rupture, which was obviously of recent occurrence. The upper part of the œsophagus contained some food. The rest of the alimentary tract was normal. The skull was found to be extensively fractured and there was much subarachnoid hæmorrhage over the cerebral hemispheres and the cerebellum. The base of the brain was bruised and lacerated, but there was no hæmorrhage into its substance. Examination of the other viscera revealed no noteworthy charges.

In one respect this case appears unique, for in it alone was the lesion the direct result of an accident—that is to say, an accident not causing a perforation from without or due to the swallowing of a foreign body. The way in which the rupture here was brought about appears to have been as follows. The patient was evidently thrown from his horse and pitched on his forehead, fracturing his skull. The neck was then either sharply flexed by the after-coming trunk and this accompanied perhaps by a sudden muscular contraction of the pharynx caused an obstruction to the forcible ejection or expression of food from the stomach and so gave rise to the rupture; or, on the other hand, it may have been overextended by the man turning a half somersault while his forehead remained in contact with the ground, in which case the œsophagus would have been stretched over the cervical vertebræ with a similar result. The former seems the more probable explanation as the rupture was on the posterior surface of the gullet.

Several of the cases reported as those of rupture of a healthy œsophagus have been objected to by various authors on the ground that the rupture in such cases was the result of a digestive process and of post-mortem occurrence, or else that there was a previous lesion at its site. There are probably some 23 undoubted cases on record, though there are 30 besides my own which have passed the scrutiny of at least one authority. Nineteen of these are to be found in Bowles and Turner's list; eight are epitomised in the paper

[1] Bowles and Turner: Transactions of the Royal Medical and Chirurgical Society 1900, p. 241.
[2] McWeeney: THE LANCET, July 21st, 1900, p. 158.

by McWeeney, who also includes nine of those mentioned by Bowles and Turner; one is briefly described by Bryant in the discussion on the latter paper; while two additional ones are included in Mackenzie's tables.[2] Summarising these cases we find that the accident occurs much more frequently in males, 24 patients being of that sex as compared with four females; in three the sex is not stated. The majority were of middle age, 17 being over 30 and nine below, while in five the age is not recorded. Alcohol seems to be a predisposing factor, since in 11 cases there was a history of drinking and two others were presumably alcoholic to a more or less degree. In nine a history of alcohol can be negatived, while in a similar number no mention of the habit is made. In all these cases the lesion was apparently brought about by the act of vomiting, though in two the exact cause is somewhat indefinitely stated. In three the vomiting was initiated by the impaction of food in the œsophagus, while in the case here recorded the ejection of the stomach contents was probably due to mechanical pressure on a loaded viscus as a result of the fall. In only one of the cases recorded has rupture of the œsophagus been the result of violence and in that instance it was only the indirect result, being brought about in a child by vomiting consequent on a fracture of the skull. In one of the records the situation and direction of the rupture are not stated, but in all the others it occurred in the lower third of the œsophagus, generally just above the diaphragm, and in some instances extending into the cardia, and in all except three was longitudinal in direction. In four the lesion was on the left side, in one on the anterior wall, while five were posterior, of which one was rather to the right and two were rather to the left. In 21 the aspect on which the lesion occurred is not given. The situation of the rupture in the lower third is probably accounted for by the fact that this portion of the œsophagus is covered only by involuntary muscle fibres, and experiments by Mackenzie, Bowles and Turner, and Brosch,[4] who increased the pressure from within by means of either gases or fluids, proved that this was the weakest part, the rupture thus obtained being always longitudinal in direction and generally on the posterior surface. These facts give point to Turner's remark that in cases where a rupture can be diagnosed operative measures should be undertaken. Emphysema of the chest wall or of the neck and face was present in 16 cases and absent in three, while in 12 no mention is made of this phenomenon. Pneumothorax likewise was found in 16 instances, was absent in three, and not mentioned in 12, and was present in 11 of the cases in which emphysema occurred. All the cases were uniformly fatal, 22 dying within 24 hours. Two survived for as long as seven and a half days; in three the duration of life is not mentioned.

The symptoms accompanying the rupture were not directly observable in the case under notice, as the patient was in a comatose condition on admission to the hospital and a rupture of the œsophagus was not suspected during life. The etiology of such a rupture is a somewhat moot point. The chief views that have been put forward are those of Zenker and Ziemssen who attribute the possibility of such an accident to an intravital œsophago-malacia due to the regurgitation of acid and peptic matters from the stomach and retention of the same in the œsophagus with accompanying cessation or weakening of the circulation, and of McWeeney who maintains that a softening of the wall occurs as the result partly of intravital digestion from retention of peptic matters and partly of inflammatory changes, as evidenced by his case in which the digestive process was accounted for by thrombosis of the vessels. Brosch[5] as the result of his investigations states that a thinning of the walls may occur without any morbid lesion, though predisposing causes are to be found in such processes as the mechanical irritation of foreign bodies, ulceration, scarring, and endarteritis obliterans leading to necrosis. In the case here recorded there was no macroscopic evidence of any previous change and it seems possible that if such a lesion can be produced experimentally in the healthy œsophagus by increasing the internal pressure such a result can be accounted for in the present instance by the great increase of abdominal pressure which is likely to have occurred in so severe an accident.

To Mr. Herbert Allingham my thanks are due for permission to make use of this case.

[2] Mackenzie: Diseases of the Throat and Nose, vol. ii.
[4] Brosch: Virchow's Archiv, Band clxii., 1900, p. 114.
[5] Loc. cit.

The specimen will shortly be placed in the St. George's Hospital museum, No. 5331 [Series IX., 27A].

Grosvenor-street, W.

THE TREATMENT OF CANCER AND OTHER FORMS OF MALIGNANT DISEASE BY ELECTRIC OSMOSE.

BY CLARENCE A. J. WRIGHT, F.R.C.S. EDIN., F.F.P.S. GLASG., &c.

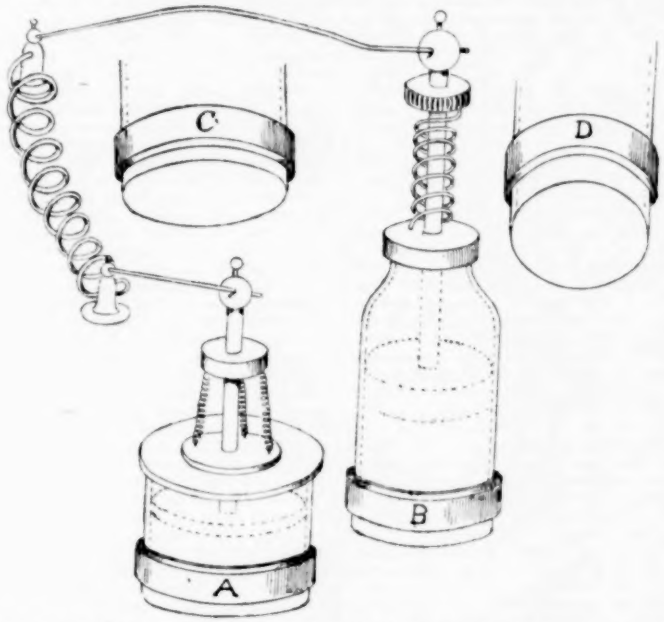
THE increase of cancer and the interest that attaches to all measures tending towards its cure must be my apology for bringing before the profession some experimental observations, crude and undigested though they be, on the results to be obtained in the treatment of the disease by electric osmose. In order that the method employed may be more easily understood I claim the indulgence of the reader for a very necessary digression, made to discuss some points bearing upon the subject. Among the more characteristic properties of high-frequency currents are those described as "the phenomena of electric osmose." To these it is necessary, in the first place, to allude.

The phenomena of electric osmose.—It has long been known that an electric current in passing through the liquid contained in a small vertical tube into which two platinum wires have been fused causes the level at which the liquid stands to be raised, when it moves in an upward direction. This phenomenon has been attributed to a mechanical current whose direction corresponds with that of the electric flux and whose velocity depends on its intensity, while the height to which the liquid can be raised is proportionate to the cross-section of the containing tube. As like effects are produced even when the tube is placed in a tank through which iced water is kept circulating, it is evident that the phenomenon can in no wise be said to depend upon the heat engendered by the passage of the current. Reinold and Rücker have noticed a somewhat similar phenomenon. When an upward current is passed through a perpendicular soap film it greatly retards, if it does not entirely arrest, the thinning of the film. Porrett observed that when a strong current was led into the liquid contained in a Daniel apparatus—a U-shaped container fitted with a porous diaphragm between the electrodes—a mechanical current was established which, by forcing a part of the fluid through the central partition, caused it to attain a higher level on the kathodic side of the diaphragm than on the anodic side. The degree to which this phenomenon, which is known as "electric endosmosis," is manifest depends upon the conductivity of the fluid and the specific dialytic[1] capacity of the diaphragm for the liquid. With fluids that are bad conductors the phenomenon is more easily demonstrable than with those of good conductive capacity; at the same time it must be remembered that one that readily saturates the diaphragm is most readily passed through its pores. Closely allied to the preceding phenomenon is that known as "electric distillation." Although Baccaria had previously noticed that an electrified fluid evaporates more readily than an unelectrified one it was Gernez who first demonstrated this apparent distillation. He employed a bent glass-tube connecting two small glass globes into which the platinum electrodes had been fused. When liquid was introduced so that it stood at the same level in both globes and an electric current was passed through it, it was noticed that the fluid passed over from the anodic container to that connected with the kathode. This phenomenon cannot be attributed to any difference in temperature or extent of surface exposed, but rather to a slow creeping of the liquid along the inner surface of the connecting tube, which gives rise to a sort of electro-capillary syphonage. Quincke,

[1] Reus explains the specific dialytic capacity of a diaphragm as the affinity it has for the liquid and the facilities it affords for transmission by capillary osmosis. For instance, linen has a greater dialytic capacity for water than either cotton, silk, or wool. Again, when a capillary tube is introduced into different liquids it is noticed in those for which it has a great dialytic affinity that the surface of the liquid is at a higher level peripherally than centrally, as seen in Fig. 1, while the appearance shown in Fig. 2 indicates a smaller dialytic affinity.

on the other hand, discovered that an electric current is set up when a liquid is forced by pressure through a porous diaphragm. The electro-motive force of the current so induced is proportionate to the pressure and to the dialytic affinity of the diaphragm. "If Porrett's experiments," says Reus, "be repeated with a fluid which is kept circulating through the porous diaphragm of a Daniel's apparatus by pressure (that in one arm being subjected to a positive pressure by means of an air pump, while a negative pressure is produced in the other by creating a partial vacuum) the rapidity with which the fluid passes through will be found to depend on the direction of the electric flux. It is increased when the direction of the electric flux and that of the current coincide and is diminished when they are opposed to each other. If instead of a simple fluid a standardised solution of two or more salts be employed it is found that the relative proportion of each in the dialysed fluid varies considerably from that of the standard solution, the amount present depending on (*a*) the specific diffusibility of the salt, (*b*) the degree of its saturation in the standard solution, (*c*) the nature of the diaphragm, and (*d*) the duration of the electric flux. When two diaphragms are employed and the direction of the current periodically reversed the pressure of the liquid in the central compartment rises and causes the diaphragm to bulge outwards. Quantitative analysis of the fluids between and on either side of the diaphragms then shows that the percentage of the different salts present in the samples taken from each of the three compartments differ not only among themselves but also from that in the standard solution." This peculiar property of alternating currents is a point of great economical interest, as it affords a ready way of separating alkaloids and other active principles, both animal and vegetable. It also furnishes a clue to the method to be employed in obtaining gold from sea water, the question largely turning on the use of suitable diaphragms. More closely connected with electro-therapy is the explanation it affords of cataphoric phenomena and the movement of ions on the one hand and the resolution under electric treatment of tumours and chronic indurations on the other. It is these peculiar properties of alternating currents that are utilised in the cataphoric treatment of disease by high frequency.

Cataphoresis by high frequency.—Of all the methods employed in vibratory electrisation those classed under the head of "stabile bipolar derivation" are the best suited for cataphoric treatment of disease by currents of high frequency. In dealing with the phenomena of electric osmose attention was directed to certain methods by which an electric transference can be effected of substances dissolved in the liquid conveying the current through a series of diaphragms interposed between the electrodes, and the peculiar aptitude of alternating currents for effecting this was especially dwelt upon. An explanation of the method by which this result is produced is afforded us by the experiments of Tommasi and Thomas Tommasina. These show that the transmission of an electric impulse by an electrolytic conductor is accompanied by a transference of substance which manifests itself by the formation of arborescent chains of crystalline deposits between the electrodes. These chains follow the line of force of the electric field. Although it had long been known that the absorption of medicaments by the skin could be increased by electric action,[2] yet it was not till the year 1890 that this method of medication attracted any real attention. The electro-chemical researches of Professor Foveau de Courmelles were the first attempt to treat the subject from a scientific standpoint. His investigations proved that cataphoresis is not simply a question of increased cutaneous absorption but of real penetration and particulate transference in accordance with certain fixed laws of the molecules of substance held in solution. These pass into the tissues which appear to act as a series of diaphragms interposed between the electrodes. The best known of these laws are coupled with the names of Faraday and Kohrasuch. According to Leduc the flux of force in electrolytes is made up of a double current of ions, an ascending current of anions passing towards the positive pole and a descending stream of kathions moving in the opposite direction. Leduc has also proved by means of coloured ions—a solution of permanganate of potash—that the medicaments do not merely pass into the subcutaneous areolar tissue, but directly penetrate into glandular organs and other structures more deeply situated. Frankenhaeusar has shown that the amount of medicament absorbed and the depth to which it penetrates have a constant relation, the former to the quantity, the latter to the intensity, of the current employed. He has also found that the anode is



A and B show the cataphoric cups attached to the opposite poles of the solenoid of high frequency. C and D show the diaphragms covering the bottom.

[2] This was first demonstrated in 1750 by Pivati, who employed a static charge for the purpose, and again in 1673 by Arthuis with electricity from the same source. In 1885 Lauret first utilised a continuous current in electric cataphoresis.

instrumental in effecting an entrance into the tissues for acids, alkaloids and their salts, and metallic salts (other than those of the fixed alkalies and alkaline earths, which alone enter at the kathode). Cup electrodes are most commonly employed in cataphoresis, although the electric bath has also been used by Apostoli, Laquerriere, and Schnée. Phillips's method has been tried by Reus and found of some service when used in connexion with clay electrodes.

Having so far discussed the methods employed it will be interesting to note how much the reaction produced depends on the medicament introduced and the menstruum used to suspend it. The mineral acids cause a resolution of the skin and tissues, whilst the metallic salts give rise to necrosis. Water has a simple stimulating effect which varies with the intensity of the current employed. Alcohol gives rise to immediate coagulation of the albuminous constituents and causes a subsequent fibrosis. Liquid paraffin, without exerting any specific effect upon the tissues, allows of the ready transference to them of substances dissolved in it. Iodine, salicylate of soda, lithium salts, and pilocarpine produce their own specific reaction. Thus we find that iodine in both aqueous and alcoholic solutions is useful in goitre, tertiary syphilis, tabes and myelitis, and in effecting the resolution of secondary deposits in glandular organs. Salicylate of soda, oil of wintergreen, and Japanese peppermint are of service in arthritism resulting from traumatism, rheumatism, or specific disease; while lecithin, guaiacol, the glycerophosphates, cinnamic acid, and the cacodylate of soda are beneficial in tuberculosis. It is evident from what has already been said in relation to Porrett's experiments that water, being a better conductor of electricity than either alcohol or liquid paraffin, is less likely to be of service in cataphoresis than the two last named. It requires, therefore, to be stiffened by admixture with either glycerine or alcohol before it is employed. Thus, in a cataphoric application of suprarenal extract as a preliminary[2] to treatment by Finsen's light it was found that glycerine with normal salt solution proved a better menstruum for its suspension than water alone. In my experiments on cancer I employ either a dilute glycero-alcoholature or liquid paraffin emulsion as a vehicle for the salts employed. The chief of these are cinnamate of strontium, glycero-phosphate of lime and strontium, citric acid, iodine, and suprarenal extract. Cinnamate of strontium suspended in three parts of glycerine to five parts of distilled water is the medicament most frequently used and on which great reliance is placed to effect a cure. The glycero-phosphates have proved useful in assisting the casting off of a slough and promoting healing after an application of acid nitrate of bismuth. The citric acid was used for subduing neuralgic pains in the part, either alone or in conjunction with phenazonum. The use of iodine was chiefly confined to reducing the size of indurated glands and promoting absorption, although a strong solution was occasionally used for its escharotic effects on the tissues. It was then dissolved in pure alcohol. The suprarenal extract was employed as a preliminary to treatment at most of the sittings so as to limit absorption and to concentrate the action of the drug on the diseased tissues.

With these observations on the method of treatment pursued I will proceed to place before the reader the results obtained in five cases of cancer in which the treatment was beneficial.

CASE 1. *Paget's disease.*—A married woman, aged 51 years, the mother of seven children, the youngest of whom was 18 years, consulted me on March 19th, 1902, about a lump in her left breast which she first noticed six months previously when bathing. It was then of the size of half a walnut. As it was painless and caused her no inconvenience she took no notice of it till six weeks previously, when she consulted a medical man on account of a slight blood-stained discharge from the nipple. He pronounced the growth to be cancer and advised the removal of the breast. The general condition of the patient was that of a thin nervous woman, rather anæmic, and the subject of obstinate constipation. With the exception of a bilious attack at each menstrual period she had enjoyed good health till lately when she began to lose flesh. Menstruation commenced at 16 years of age and ceased at the age of 43 years. She had always suffered from cracked and tender nipples while nursing her children, but had not noticed any scaly patches on them till the discharge appeared. On examination a hard nodular mass of the size of a penny bun was found in the left mamma beneath the nipple which, being involved in the growth, was retracted and covered with a scaly crust. A similar eruption appeared on the areola which bled on its removal. Apart from this pressure on the mass caused a sanious discharge to exude from the nipple. The pig-skin appearance of the overlying skin clearly showed that it was adherent to the subjacent tumour. It was impossible to lift or to roll the mass over the pectoral muscle. The axillary lymphatic glands were enlarged, two being of the size of a small walnut and others of about the size of a hazel-nut. The diagnosis of the case was simple and operation was advised. To this the patient was determined in no wise to submit. When cataphoresis by high frequency was suggested as an experiment she expressed her willingness to undergo the new method of treatment and was given a sitting of ten minutes' duration, three of which were with adrenalin solution (1 in 2500) and the remaining seven with a glycero-cinnamate of strontium. A dressing of lint soaked in weak infusion of cinnamon in which some citric acid had been dissolved was then applied to the breast and the patient was instructed to keep it constantly moist. On the 22nd the patient complained of having passed a restless night after the sitting. She was slightly feverish but slept better on the following day. On removing the dressing the nipple appeared raw but free from crust. Another sitting of the same duration and nature was given her. This treatment was continued until the middle of May, when on the 19th the ulceration around the nipple appeared to be quite healed and no discharge could be expressed from it. Though the lump was much smaller the skin was still very knobby and puckered. A sitting of three minutes' application of iodine was then made. This caused some pain and smarting at the time. On the two following days the breast was very swollen, red, and tender, so that six days were allowed to elapse before the next application was made. This being a weaker solution was better borne and gave rise to no irritation. From this time onwards the patient was treated to alternate applications of cinnamate of strontium and iodine till 46 sittings were made. On July 29th the growth had greatly diminished in size and consisted of seven separate nodules, each of the size of a hazel-nut, imbedded in a firm fibrous stroma. The skin, though still adherent, was more soft and supple. The enlarged axillary glands had quite disappeared. The patient had gained 18 pounds in weight during the preceding three months. Writing on Feb. 7th, 1903, she says: "The lumps appear, if anything, smaller and more freely moveable. You will be pleased to learn that I have gained another four pounds since last I saw you. I still use the citro-cinnamic dressings at bed-time and take my vigorine" (a mixture of calcium glycerophosphates with plasmon). The beneficial effects of cataphoric application of cinnamic acid are here well illustrated. Similar good results were obtained in Case 2 from its use.

CASE 2. *Epithelioma of the breast starting in the tubercles of Morgagni.*—A single woman, aged 37 years, consulted me on May 17th, 1902, and gave the following history. "I was struck on the right breast three years ago by a cricket ball. This caused a deal of pain and discolouration which was more than a fortnight in disappearing. Early in November last I noticed a small pimple on the inner side of the nipple which I scratched. As it then festered I poulticed it to bring it to a head. The ulcer so caused has, in spite of treatment by caustics, salves, lotions, and scrapings, continued to spread. I have also some lumps under my arm which cause some pain in movement. I have been repeatedly advised to have my breast off, but dread the operation, as both my parents have died after operation for cancer (father, the tongue; mother, rectum)." The patient was a flabby, florid-complexioned woman, in whom menstruation began at the age of 13 years and still continued. She had lived for years in the East, where she intended to return after her family affairs were settled. With the exception of malarial attacks and an attack of cholera she had enjoyed fair health. Her digestive tract was disordered by alcohol. Her liver was somewhat enlarged and so also was the spleen, but the kidneys were healthy, no sugar or albumin being found. On examination a large fungating ulcerative mass (three inches by two and a quarter inches) was seen covering the inner side of the nipple and spreading somewhat around it. The surface bled on the slightest touch. In a piece of tissue removed for microscopic examination typical cell nests were found. The growth had a deep attachment to the underlying tissues

[2] It is found that when the tissues are rendered bloodless the effect of the light upon them is greatly increased.

which were matted together. Several smaller hard nodular lumps were present in the outer half of the same breast. These involved the skin but were freely moveable over the underlying muscle. Both supraclavicular and axillary glands were enlarged; some enlargement could also be felt beneath the great pectoral fold. Owing to the amount of pain felt in the part a citro-cinnamate dressing was ordered to be applied for three days before starting cataphoric treatment. On the 21st the patient was given a first sitting of five minutes' application of suprarenal extract and four minutes with eucalyptol-paraffin, after which the citro-cinnamate dressing was again applied. The temperature rose the same night to 103·6° F. and gave rise to some hæmorrhage with much pain and discomfort. A mixture of citric acid and antipyrin was ordered. On the 22nd she had passed a restless night but her temperature was now normal. The dressing was saturated with the discharge and its removal caused a reappearance of the hæmorrhage which, however, readily yielded to a spray of adrenalin solution (1 in 1000). Fresh dressings were applied and the arm was bandaged to the side. On the 24th she had a second sitting of five minutes with suprarenal extract and eight minutes with strong iodine glycero-alcoholature. Her temperature rose at night to 102 6° and was attended with more pain but no hæmorrhage. On the next day the wound was found to be sloughy and the parts around were much inflamed. The surface was dusted with xeroform and the citro-cinnamate dressings were reapplied. On the 25th the wound continued to be very sloughy. A third sitting of three minutes with adrenalin and seven minutes with glycero phosphate solution was given. An iodo-eucalyptol dressing was applied. Pain had been great all day and the patient felt feverish with no appetite and great thirst. The evening temperature was 99·8°. The dressing was changed at bedtime for citro-cinnamate. On the 30th the slough came away, leaving a clean, healthy surface. A fourth sitting of 10 minutes was given with adrenalin and cinnamate of strontium to the ulcer and an extra three minutes with weak iodine solution to the glands. The temperature at night was 100·2°. On June 3rd fresh fungating granulations reappeared and the patient had a fifth sitting of 10 minutes with adrenalin solution for four minutes and acid nitrate of bismuth for six minutes. The glands were treated with iodine solution. This destroyed the fungating mass. On the 9th the slough had come away and a sixth sitting of 10 minutes with adrenalin and glycero-phosphate solution was given. On the 11th a seventh sitting was given with adrenalin and cinnamate of soda. From this time the application consisted chiefly of cinnamate of strontium and the glycero-phosphates used at alternate sittings. On the 18th an axillary abscess was opened and the wound was swabbed out with iodo-eucalyptol solution. Towards evening œdema of the hands and arms appeared. The temperature rose to 103·8°. The swelling of the arms took over a week to subside, although the temperature dropped to normal by the next morning. On August 14th the ulcer had almost completely cicatrised and much of the surrounding and underlying hardness had vanished. On the 19th the ulcer was perfectly healed and the swelling in the breast had almost entirely disappeared, very little being perceptible with the hand laid flat on the breast. The patient was now allowed to go to her friends. When next seen on Oct. 8th she was examined and the breast was found to have continued well. The skin over the ulcer was soft and paler. The swelling had all disappeared and she sailed for Singapore. Subsequent reports received all tell the same tale: "No recurrence; no swelling; no pain. Nothing but the scar to remind me of the previous trouble." Microscopic examination proved this to have been a true epithelioma which appeared to have started in the tubercles of Montgomery and to have spread most towards the sternum. I cannot recall any case having a similar origin. The swabbing-out of the abscess cavity with strong iodo-eucalyptol solution was undoubtedly the cause of the œdema. The great efficacy of bismuth salts in getting rid of the recurrent fungoid growth is to be remarked.

CASE 3. *Malignant ulceration of the vaginal cervix.*—A married woman, aged 32 years, the mother of two children, came to me on May 3rd, 1902, complaining of a foul vaginal discharge attended by hæmorrhage after intercourse. She complained also of dyspeptic symptoms (reflex?) and inability to indulge in much outdoor exercise. Her family history was good and her general health, with the exception of constipation and dyspeptic trouble, was fair. Examination per vaginam showed some ulcerative excavation of the vaginal cervix with enlargement of the lymphatics. The uterus was fairly moveable but heavy. Scraping from the surface confirmed the diagnosis of cancer. This case was treated by effluvation with Bisserie's electrode and cataphoresis by high frequency. The applications employed were chiefly cinnamate of soda and dilute solution of iodine. After each sitting the vagina was tamponed with a glycerolate of citro-cinnamic acid. After 12 sittings the ulcer ceased to spread and took on a healthy action. Seven subsequent sittings completed the treatment. There has been so far no recurrence of the disease, either locally or in other organs. The constipation, which was a marked symptom in the case, readily yielded to treatment by the method devised by Marie of Toulouse.

CASE 4.—*Recurrence after extensive operation.*—The patient was a man, aged 73 years, from whose breast a malignant growth had been removed 14 months previously, and who consulted me on August 14th, 1902, for two recurrent nodules in the scar of operation. 12 sittings with iodine and cinnamate of strontium sufficed for their entire absorption. A recurrence in the axillary wound in November of the same year yielded to treatment after seven sittings.

CASE 5.—*Melanotic cancer starting in a pigmented mole on the tarso-metatarsal joint of the great toe.*—This patient, a man, aged 45 years, consulted me on May 23rd, 1902, about "an inflamed bunion" on the great toe of his right foot. He had from birth had a pigmented mole on the inner side of the tarso-metatarsal articulation, which became inflamed some nine months previously and had continued in much the same condition ever since. He had now, in addition, a nodular mass in his groin, the size of a goose's egg. Examination disclosed a melanotic cancer of the part with secondary induration of the inguinal glands. The part was treated with acid nitrate of bismuth, cinnamic acid, and iodine, and he was discharged cured on Oct. 27th. In December last he showed me several flesh moles that had since come out and taken on a similar action. These were small and yielded to treatment in from seven to 18 sittings. His last letter from the United States, dated April 21st, 1903, declared him to be still free from any further manifestation of the disease.

It must not, however, for an instant be supposed that I have met with similar success in all cases that have undergone this method of treatment. Of the 23 cases of which I have notes, in the five above-mentioned it proved successful. In two others it signally failed either to arrest the disease or to prevent secondary growth in the internal organs. Both these cases were, however, from the first hopeless in the extreme, both from the degree of cachexia present and from the disease having already spread to the lymphatics of the trunk. In 16 cases treatment was abandoned after sittings varying from four to ten in number, some preferring to undergo operation and others treatment by the x rays and Finsen's light. Yet if all these be accounted failures I would venture to suggest that 22 per cent. of successes is still sufficiently encouraging to recommend this method of treatment to the attention of the profession for a more extended trial than I have yet given it. It is not put forward as a cure for cancer but as a suggestion of the line of treatment to be adopted till that is really discovered. I personally believe that a "radio-active salt of strontium, introduced into the tissues by cataphoresis by high frequency," will prove the desired panacea of all forms of malignant disease. With these suggestions I leave the pursuit to others better fitted to carry it to a successful issue.

Leytonstone.

THE TREATMENT OF PLAGUE BY LARGE DOSES OF CARBOLIC ACID GIVEN INTERNALLY.

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IN 1899 I published in THE LANCET[1] the notes of a case of bubonic plague treated successfully by large doses of carbolic acid. I was led to try this remedy from reading an article on the treatment of influenza in a similar way. The patient above referred to was a Scotchman and he came into hospital practically as soon as he was attacked by the

[1] THE LANCET, Dec. 9th, 1899, p. 1589.

disease. In the published account of this case the doses were not given quite correctly so I will recapitulate them. Carbolic acid was commenced on the day after admission, 12 grains being given every two hours for 60 hours; after this the dose was six grains every four hours. On the seventh day there was slight carboluria which disappeared on reducing the dose to two grains twice daily. This was continued for a fortnight. It has been suggested that when carbolic acid is given by the mouth it is soon converted into a carbolate. But Mitchell Bruce, in the last edition of his work on "Materia Medica and Therapeutics," states that carbolic acid as such can be obtained from the blood when given internally in sufficiently large doses.

In 1900 a case of pneumonic plague was published in THE LANCET[2] by Mr. J. Bell, which was treated in a similar way by large doses of carbolic acid and recovery ensued. This occurred at the commencement of the outbreak of that year and it was determined to give this drug a trial at the plague hospital. Although the mortality was slightly decreased, the medical officer in charge reported at the end of the outbreak that the treatment of plague by carbolic acid was a failure. As I thought that he had not given the drug in sufficiently large doses I requested him to give the remedy a further trial this year. This has been done and with excellent results. I attach the notes of some six cases treated in this way at Kennedy Town Hospital this summer, a detailed report of which will be published later; but the results are so interesting as to justify this preliminary account.

Whilst dealing with plague I would refer to the returns as published in the daily papers at home; from the large proportion of deaths to cases it would appear that the mortality is excessively high. The reason for this is that in many of the deaths the bodies are "dumped" in the streets owing to the repugnance of the Chinese to our disinfecting methods. It is these "dumped" bodies which render nugatory our endeavours to stamp out the disease, for as we cannot ascertain the houses from which these cases come they are not disinfected. In some weeks during the epidemic of this year, which is now (July 28th) rapidly diminishing, the percentage of "dumped" bodies has exceeded 40 per cent. Information was obtained at the commencement of the outbreak of this year that a body of men had been formed who would undertake to "dump" a body, presumably dead from plague, for $50!

CASE 1.—The patient, an Englishman, aged 42 years, was admitted to Kennedy Town Hospital, Hong-Kong, on May 16th, 1903, suffering from plague. He was a little feverish and had a small right femoral bubo; plague bacilli were found in his blood. The case was a mild one. Ten minims of solution of strychnine were given in mixture every six hours and five grains of sulphate of quinine were given three times a day. Belladonna was applied locally to the bubo. Four ounces of brandy were taken in the 24 hours. The patient was put on a liquid diet. On the 25th the bubo was resolving without suppuration. The diet was changed to a solid one. On the 30th there were still a few plague bacilli in the blood. 12 grains of carbolic acid were given in mixture every four hours. On June 6th no plague bacilli were present in the blood. On the 8th the patient was discharged. This case is interesting in that it was an ordinary somewhat mild case which when apparently quite convalescent still harboured plague bacilli and in which the bacilli disappeared within a few days after the use of carbolic acid.

CASE 2.—The patient, an Englishman, aged 33 years, was admitted to Kennedy Town Hospital, Hong-Kong, on June 6th, 1903, suffering from plague. The illness began with fever, the temperature being 105° F., on the previous day. On admission the temperature was 104° and the patient was delirious. No bubo was present. Plague bacilli were found in the blood. The condition was complicated by alcoholism. 12 grains of carbolic acid were given in mixture every two hours. Seven minims of tincture of digitalis and five minims of solution of strychnine in mixture were also given every four hours. Eight ounces of brandy were taken in the 24 hours; this was reduced to four ounces two days later. The patient was put on a liquid diet. Iced compresses were used to control the temperature. On the 7th the delirium was severe. 30 grains of bromide of potassium and 20 grains of chloral hydrate were administered at night. On the 12th for the first time the patient was able to be freed from shackles. The delirium had been violent day and night but he was now quiet though very weak. On the 18th the diet was improved and he was allowed to sit up in bed. On the 23rd 12 grains of carbolic acid were given every four hours. On the 24th the temperature was 100°. Five grains of sulphate of quinine were given thrice daily. On the 26th plague bacilli were found in the blood. The carbolic acid was stopped. Syrup of phosphate of iron with quinine and strychnine was given as a tonic. On July 7th the patient was quite convalescent but was not yet fit to resume work. In this case, a severe septic case, non-bubonic, over 2500 grains of carbolic acid were given before the blood was free from the plague bacilli.

CASE 3.—The patient, an Englishman, aged 30 years, was admitted to Kennedy Town Hospital, Hong-Kong, on June 16th, 1903, suffering from plague. He had been run down in health for six weeks before, but the actual attack of plague seems to have commenced on June 10th when he first noticed swelling and tenderness in the right axilla. He did not note fever but he felt out of sorts. On admission the temperature was 101° F. There was a bubo in the right axilla of the size of a duck's egg. Plague bacilli were present in the blood. 12 grains of carbolic acid were given in mixture every two hours. Seven minims of tincture of digitalis and five minims of solution of strychnine were given in mixture every six hours. Belladonna, with fomentations, was applied locally to the bubo. Brandy to the amount of four ounces was given in the 24 hours. The patient was put on a liquid diet. On the 20th the digitalis and strychnine were stopped and the diet was improved. On the 23rd the patient was allowed solid food. On the 25th the bubo was resolving without suppuration. No plague bacilli were now present in the blood. The carbolic acid was stopped. On the 30th ointment of red iodide of mercury was ordered to be rubbed in over the remains of the bubo. On July 6th the bubo had disappeared and the patient was discharged from hospital. An interesting feature in this case is that in its initial ambulant stage on June 14th—i.e., two days before admission to hospital—the patient attended a church parade at St. John's Cathedral and was publicly presented by His Excellency the Governor with the South African war medal. He does not seem to have at that time suspected plague but stated that on account of the pain in the right axilla he had great difficulty in raising his hand to the salute after the medal had been pinned on his breast.

CASE 4.—The patient, an Englishwoman, aged 42 years, was admitted to Kennedy Town Hospital, Hong-Kong, on June 8th, 1903, suffering from plague. She had been out of sorts for some weeks. The attack of plague commenced on June 5th when she had fever, the temperature being 104° F. On the 6th the temperature was 102° and tenderness was present in the left groin. On the 7th the temperature was 100°. On the 8th plague was diagnosed and the patient was admitted to hospital. The temperature was 99°. There were a left inguinal bubo of the size of a small hen's egg and slight tender swelling in the left femoral region. Plague bacilli were present in the blood. The patient was very nervous but otherwise in good condition. The treatment was the same as that in Case 3. An essential feature was the administration of 12 grains of carbolic acid every two hours. On the 10th the femoral bubo was more marked, more tender, and of the size of a large hen's egg. The diet was improved. On the 18th the inguinal bubo was incised and the femoral bubo was smaller and less tender. On the 20th the digitalis and strychnine were stopped and the carbolic acid was reduced to 12 grains every four hours. Solid food was given. On the 23rd no plague bacilli were found in the blood or in the discharge from the bubo. The femoral bubo resolved without suppuration and the inguinal bubo was healing. The carbolic acid was stopped. On the 25th hypophosphites were given as a tonic and on the 27th the patient was discharged from hospital.

CASE 5.—The patient, a Japanese boy, aged 15 years, was admitted to Kennedy Town Hospital, Hong-Kong, on June 8th, 1903, suffering from plague. On the third day of his illness the temperature was 102·2° F. He had a large diffuse right cervical bubo. Plague bacilli were found in the blood. There was no delirium. Eight grains of carbolic acid in mixture were given every two hours and five minims of tincture of digitalis and four minims of solution of

[2] THE LANCET, July 7th, 1900, p. 21.

strychnine in mixture were given every six hours. Belladonna was applied locally to the bubo. Three ounces of brandy were given in the 24 hours. The patient was placed on a liquid diet. On the 10th the temperature was normal and the patient partook of tea and toast. On the 17th the digitalis and strychnine were stopped. On the 18th the bacilli were still found in the blood but only rarely. The carbolic acid was now reduced to six grains every four hours. The bubo was fomented. On the 20th solid food was given. On the 22nd there were no plague bacilli in the blood. The carbolic acid mixture was now stopped and the bubo was incised. By July 5th the bubo had healed and the patient was discharged from hospital.

CASE 6.—The patient, an Englishman, aged 23 years, was admitted to Kennedy Town Hospital, Hong-Kong, on June 13th, 1903, suffering from plague. He had been admitted into the Government Civil Hospital on the 11th with fever, his temperature being 102° F. On the 12th the temperature had risen to 105·8°. He had a tender swelling in the left femoral region and plague bacilli were found in his blood. On the 13th he was transferred to Kennedy Town Hospital. The treatment was the same as that in Case 3. An essential feature was the administration of 12 grains of carbolic acid every two hours. Ice compresses were applied to control the temperature. On the 16th there was a steady improvement. There had been no delirium and the bubo was less tender. On the 17th the patient's diet was improved and the digitalis was stopped. On the 23rd he was given solid food. On the 28th the bubo was incised. On the 29th there were no plague bacilli found in the blood. On the 30th the carbolic acid mixture was stopped. Syrup of phosphate of iron with quinine and strychnine was given as a tonic. On July 7th the patient was quite convalescent and the bubo had healed.

Hong-Kong.

A CASE OF PRESUMED PTOMAINE POISONING.

BY T. B. BROADWAY, M.B., CH.B. GLASG.

I THINK that the following case presents some points of interest, both in diagnosis and treatment. In June last I was summoned to a case, all the information I could obtain from the messenger being that his wife was very ill. He urged me to return with him at once if possible. On reaching the place I found the patient lying in the dorsal position. Her complexion at once attracted my attention, it being a dirty greyish-brown, her eyes were sunken and without lustre, and she looked like a corpse. As I had attended the family before, I knew her as a wiry, cheery woman, with a pinkish complexion. I found, however, that she was quite sensible and inquiry elicited the following history of her illness. She was 29 years of age, the mother of three children, and had scarcely had any sickness worth speaking of before her present illness. On a Monday she had washed the clothes of the household and after the day's work had sat down with her husband and a couple of friends to a supper of tinned salmon; they all partook of it, only she took two helpings besides sopping up the gravy with bread. She retired to bed an hour later and slept till 2 A.M., when she awoke with excruciating pains across her abdomen and started vomiting, the vomit consisting chiefly of her supper and bitter, green bile. This eased the pain somewhat, but from then to Wednesday morning, when I saw her, she had neither slept nor been able to keep down anything, not even water; there had, however, been no diarrhœa. On questioning her I found that the last occasion on which her bowels had acted was on the Monday afternoon; they had then moved fairly freely. On examination the tongue was found to be moist but thickly coated with fur and the few teeth she had were covered with sordes. Her face had a pinched, drawn look and her eyes lacked lustre. She had a temperature of 101·4° F. and a pulse of 130 per minute. Her respirations were easy and not at all hurried. She was perspiring freely, the sweat giving her a cold, clammy feel. She had had what she called one or two shivering fits. She had just passed her menstrual period. The lungs and the heart on examination were found to be normal. The abdomen was boat-shaped; she was lying with her legs extended. On palpation no resistance could be made out; she, however, complained of tenderness about the epigastrium. The liver and the spleen were normal to both palpation and percussion. She said that she was afraid to cough or to draw a deep breath as the pain about the pit of the stomach became worse. Her one cry was, Could I not do something to stop her sickness and to give her sleep. As I found that she could not even retain water I ordered her ice to suck and put her on a mixture of bismuth salicylate, tincture of orange, and chloroform water. Warm fomentations were ordered to be applied to her abdomen and the district nurse was told to give her an enema of soap and water which she retained.

I saw the patient again in the evening when, as her sickness continued, I stopped the mixture and gave her an aperient which she immediately brought up. I then gave her another rectal injection. This acted fairly well and after applying a sinapism to her epigastrium followed by warm fomentations, I gave her half a grain of morphia hypodermically before leaving her. Her temperature was 100·4°, her pulse was 120, her respirations were still easy, and there was no increase of tenderness over the bowel. On the next morning I saw her in consultation with Dr. A. Shaw of St. Austell. Her temperature and pulse were the same, her breathing now was hurried and thoracic, there was meteorism, and the abdomen was very tender to pressure. She was lying with her legs drawn up. She had not been as sick as before and had slept for four hours under the influence of the morphia. Her tongue was dry and looked redder and she complained of great thirst. She was still on ice alone. Dr. Shaw diagnosed acute peritonitis. A mixture of sulphate of magnesia and belladonna was given, which she could not retain, and also another enema. This she retained for two hours; then she had a copious movement of the bowels, passing a good deal of flatus at the same time. She now complained of hunger; as, however, she still felt sick, though not vomiting, she was given nothing but ice. As she could not sleep I again injected morphia hypodermically and left her.

On Friday morning I saw her again with Dr. Shaw. On our entering the room she voluntarily stated that she had passed flatus per rectum and that her bowels had also moved slightly during the night. Her temperature had fallen to 99° and her pulse to 103 per minute, her respirations were easier, and her abdomen was less tender and not so tympanitic. She was lying on her side with her legs drawn up. As she said that she was very hungry we added one drachm of panopeptone every hour to the ice; this she kept down and felt fairly comfortable when I saw her about 5 P.M. About 9 P.M. a change for the worse took place and I was sent for. On my arrival she had a drawn, anxious look on her face; she was bathed in a cold sweat, her temperature had risen to 104°, and her pulse-rate had increased to 180; her respirations were more hurried, her bowels were not so tympanitic or tender, but her vomiting had returned and the vomitus had a slight fæcal odour. The prognosis was grave and looked hopeless in these circumstances. I again injected morphia hypodermically and stopped the panopeptone and as she said she felt as if she would like to have the use of her bowels I gave her an enema of turpentine and olive oil; this acted well and she felt more comfortable. I was again called about 3 A.M., but on arriving found that she was dead. Her mother stated that she slept for an hour after the hypodermic injection, then she woke up and started to vomit, the ejected matter smelling badly; she had also used the bedpan and had passed flatus. They sent for me as she continued to retch. I examined the vomited matter; it was dark-brown in colour and had a strongly fæcal odour. At no time during her illness was there albumin in the urine.

What was this case? Was it one of obstruction? The fæcal vomit at the end would favour this view, but the passing of flatus would counteract this idea. Was it acute peritonitis, and if so what gave rise to it? But the tenderness, the meteorism, and the thoracic breathing did not occur until the fourth day of the illness. Or was it ptomaine poisoning due to the tinned salmon giving rise to symptoms both of obstruction and of peritonitis? This latter is the view I took. It is a pity, however, that in such cases the coroner does not order a post-mortem examination, as it would clear the way to diagnosis. We thought of performing laparotomy, but she was not a fit subject for such an operation in a private house and she refused to go to a hospital.

Dorchester.

A Mirror
OF
HOSPITAL PRACTICE,
BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

NORWOOD COTTAGE HOSPITAL.

TWIN ECTOPIC AND UTERINE GESTATION; LAPAROTOMY; DEATH ON THE SEVENTH DAY.

(Under the care of Dr. JOHN H. GALTON.)

A WOMAN, aged 34 years, was admitted into Norwood Cottage Hospital on July 22nd as a case of pelvic cellulitis with the following history. She had had four children, the last four years previously. She was supposed to be pregnant since April 23rd. Six weeks before she had sudden pain over the hypogastrium which came on in the night while asleep. The pain was very severe and was accompanied with diarrhœa and sickness. Having taken aperient medicine she soon got better. Pain of the same character occurred 14 days after, when she fainted away. She was then in bed for a week. On July 20th a similar attack recurred. She was very anæmic on admission. On examination a rounded tumour which was dull on percussion occupied the hypogastric, left iliac, and lower part of the lumbar region, reaching to an inch from the umbilicus. Per vaginam the uterus was fixed and there was fulness all round, particularly in the left inguinal region and in Douglas's pouch. She was treated with half an ounce of peptomanganese three times a day and injections of boric acid with hot water. On August 1st Dr. Galton took charge of the case. There was then no sign of pregnancy in the breasts which were flaccid with flabby, pale areola and no trace of liquor Oldhamii. The rounded abdominal tumour had the feel of a pregnant uterus. The os was full, soft, and patulous, easily admitting the finger up to the internal os; the uterus was quite fixed and the swelling in Douglas's pouch was of doughy consistence. On the 2nd, after an enema at 8.30 A.M., she had an acute attack of rectal pain, quite different in character from the former attacks. A morphia suppository was given. At 11.30 A.M. when seen by Dr. Galton the pulse was 130 and the temperature was 98·4° F. She was very anæmic with an anxious, sunken look. On examination the swelling in Douglas's pouch had greatly increased and it was acutely distended and tense per vaginam and per rectum. At 4.30 P.M. A.C.E. mixture was given by Dr. Howard and, assisted by Dr. Michael and Dr. Parker, Dr. Galton performed laparotomy. A four-inch incision was made in the median line and the peritoneum was found filled in the lower part of the abdomen with blood and clot. The intestines were much distended with flatus. On the left side was the uterus, enlarged to the size of the full-time fœtal head, and on the right side, quite filled with blood clot, was found a broken cyst exuding blood. The right broad ligament was clamped with a long broad ligament clamp and the fœtus, about three and a half months, was first extracted; the cord was then traced down to the placenta and this was carefully separated with the fingers. It was then found that the pedicle of the cyst could be drawn up to the abdominal wound and it was transfixed and tied in two halves with a third ligature applied round the whole. There was no further bleeding and the remains of the cyst were cut away and the pedicle was dropped back. About three pints of fluid and clotted blood were then cleared out of the lower abdomen and Douglas's pouch and the abdomen was thoroughly washed out with sterilised hot water. The abdominal wound was closed with deep silver wire sutures and surface horsehair ones. The operation lasted two hours. The pulse after the operation was 120 and the temperature was 97°; at 10 P.M. the pulse was 128 and the temperature was 100°. On the 3rd at 2 A.M. the pulse was 140 and the temperature was 100·1°; at 10 A.M. the pulse was 128 and the temperature was 101·2°. She said that she was free from pain. At 6 P.M. the pulse was 128 and the temperature was 100·6°. On the 4th at 1 A.M. she vomited dark-green matter. At 10 A.M. the pulse was 123 and the temperature was 98·4°. The abdomen was less distended. There was abdominal respiration and no tenderness at the upper part of the abdomen on pressure. At 6 P.M. the pulse was 128 and the temperature was 100·2°. On the 5th at 10 A.M. the pulse was 140 and the temperature was 100·2°; at noon, with an enema of egg and turpentine the bowels acted with a solid motion. She had had a good night and was looking better. On the 6th at 10 A.M. the pulse was 146 and the temperature was 101·2° She had had a good night and was looking better. One drachm of brandy every two hours was ordered. At 10 A.M. and at 6 P.M. turpentine enemata were given without effect. On the 7th at 10 A.M. the pulse was 148 and the temperature was 102·4°. She had had a fair night but there had been sickness at intervals throughout and constant sickness in the morning. One grain of calomel was given every hour for three doses without effect. She was given a turpentine enema at 10 A.M. and at 6 P.M. At 6 P.M. the pulse was 140 and the temperature was 102 8°. On the 8th at 6 A.M. the pulse was 158 and the temperature was 102·8°. She was evidently sinking; there was still some abdominal respiration and the upper abdomen was soft and there was no pain on pressure. At 10 A.M. the pulse was 160 and the temperature was 105·4°, and at 1 P.M. she died.

Necropsy.—The post-mortem examination was made 24 hours after death. On opening the abdomen some sero-purulent fluid escaped; there was thick lymph between the lower folds of intestine and especially over the anterior surface of the uterus which was found to contain a fœtus (three and a half months) and placenta with membranes. The pelvic tissues were deeply blood-stained and coated with lymph but there were no signs of recent hæmorrhage and the ligatures applied at the operation were intact, the abdominal wound was closed in an even line, and no adhesion or lymph was found on its internal surface.

Remarks by Dr. GALTON.—The above case is worthy of record from its rarity. I can find no reference to concurrent ectopic and uterine gestation in the pamphlet by Mr. J. W. Taylor of Birmingham, but Dr. A. D. Webster of Edinburgh refers to Loudon in 1836, Whinnery in 1846, and cases by Starley, Cook, Galabin, and Browne. The case presented great difficulty in diagnosis, as the breasts gave no sign of pregnancy. Probably the gestation was at first tubal and rupture occurring six weeks before her admission to hospital converted this into a tubo-ligamentary gestation. The diagnosis was finally confirmed by the great increase of the swelling in Douglas's pouch following an attack of pain and faintness. The rupture, occurring about the fourteenth week, gave no possibility of hearing the fœtal heart as an aid to diagnosis. Naegle has never heard it before the eighteenth week. The case also illustrates an observation of Mr. Taylor that a persistently high pulse-rate more than anything else is the gauge of the severity of the patient's condition. In this case abdominal respiration kept up to the last and the muscles were lax and there was no tenderness on pressure at the upper abdomen.

May I be allowed a word as to abdominal suturing in laparotomy? On post-mortem examination the internal abdominal wound was found united in a line six days after operation. The same result I have seen in a case under the care of Sir Spencer Wells on the fourth day after operation. In both silver wire sutures threaded on two needles were employed and in those cases which I have seen with more fortunate results (some 20) no evil after consequences have resulted from this suture; yet it is almost universally discarded at present with the occasional result that the general practitioner, often left in charge of the case, has to pick out the buried sutures.

MANCHESTER UNION HOSPITAL.

A CASE OF SIMPLE SOLITARY ULCER OF THE BLADDER.

(Under the care of Mr. ARTHUR H. BURGESS.)

A MAN, aged 25 years, was admitted to the Manchester Union Hospital on Feb. 10th, 1903, with a history that ten days before he had felt a sudden pain in the right groin and perineum while passing urine and that this had recurred on each subsequent occasion. He had always enjoyed excellent health previously and no history of venereal or other urinary trouble could be obtained. Micturition became more frequent as well as painful, and three days

from the onset the urine contained blood, at first in small clots, later in larger amount, until on admission he passed almost pure blood. At that date he was well nourished but extremely pale as a result of the repeated hæmorrhage. The urine had a specific gravity of 1020, an acid reaction, and contained a large amount of blood. Sounding of the bladder yielded a negative result and only a slight tenderness of the base of the bladder was noted on rectal palpation. No signs of tuberculosis could be discovered in the genito-urinary system or elsewhere and repeated examinations of the urine failed to disclose the tubercle bacillus. Suprapubic cystotomy was advised but as the patient at first declined to undergo any operation it was not performed until Feb. 25th. A circular ulcer, about three-fourths of an inch in diameter, was discovered on the posterior wall of the bladder, close to the trigone and a little to the right of the median line. Its edges were raised and thickened, its base was granular and sloughy, and from the latter smart hæmorrhage was actually seen taking place from three distinct points. The rest of the mucous membrane appeared to be healthy. The ulcer was thoroughly exposed by means of a caisson tube, its base was carefully scraped and afterwards well swabbed with carbolic acid solution 1 in 20, and a full-sized drainage-tube was left in the suprapubic opening. On the next day the urine was quite free from blood and has ever since remained so. Free drainage was maintained for three weeks in order to give thorough rest to the bladder, after which the wound readily closed. Convalescence was complicated by an attack of acute epididymitis on the right side, commencing ten days after the operation, but this subsided without suppuration. When seen again four months later the patient appeared to be in perfect health and there had been no recurrence of any of his symptoms.

Reviews and Notices of Books.

A Text-book of Pathology and Pathological Anatomy. By Dr. HANS SCHMAUS, Extraordinary Professor and First Assistant in the Pathological Institute, Munich. Translated from the Sixth German Edition by Dr. A. E. THAYER, Instructor in Pathology in the Cornell University Medical College, New York. Edited with additions by Dr. JAMES EWING, Professor of Pathology in the Cornell University Medical College, New York. Illustrated with 351 engravings, including 35 coloured inset plates. London: Henry Kimpton. 1903. Pp. 602. Price 21*s.*

THE fact that this work has reached a sixth edition in Germany is ample proof of its high merits, and on a study of the book it is at once apparent that it stands out among the well-known continental text-books by reason of its close adaptation to the needs of students. The author has evidently not attempted to compete with the more discursive works of his countrymen but has endeavoured to write a shorter, more compact, but equally comprehensive book embodying all the important principles and facts that should be brought before students when being instructed in pathology. As a result he has written a text-book in pathology which, whilst not only containing a vast amount of information, is also admirably adapted for students just entering on the subject. There is a notable absence of the argumentative style; the quotation of authorities and the display of personal opinion that are prominent features in the larger works are also not present; neither is the full discussion of many topics that properly belong to a work of reference. Instead of such material there is found in this volume a condensed statement of present knowledge, amplified with aptly chosen instances.

The care with which the book has been written is well shown in the earlier chapters. The subjects of hyperæmia, anæmia, œdema, and the like are rather apt to be found tedious to read about by the student. Dr. Schmaus, however, presents these matters in a most interesting manner. The section on thrombosis, for example, is excellently arranged. After an explanation of what is indicated by the term and a few remarks on coagulation of the blood, the conditions favouring thrombosis are discussed. It is pointed out that although blood cells, red and white, plates, and fibrin assist in the formation of thrombi, many varieties of the process are known and the single elements composing them may form separate clots under various circumstances. Each of them alone may form a thrombus, but usually all are found. The various forms of thrombi are then explained under the headings of stagnation thrombi, compression thrombi, dilatation thrombi, marantic thrombi, those which are formed by the precipitation of material on the wall of the heart or in the valve pockets (and which may be called parietal or valvular) and obstructing or obliterating thrombi. The process of embolism is also lucidly described.

In the chapter entitled "General Bodily Disorders from Disturbed Organic Functions" several subjects are discussed which are not usually considered in text-books on pathology but, nevertheless, a knowledge of them is highly necessary to the student and will be especially useful to him when subsequently engaged in clinical work. Thus the first section deals with the changes which ensue when cardiac insufficiency is marked, whether this be due to lessened cardiac action or to alterations in peripheral resistance; another section is concerned with disease from variations of temperature; and, finally, some remarks are made on auto-intoxications, including uræmia, "retention icterus," myxœdema, diabetes, Addison's disease, the status lymphaticus, Basedow's disease, and puerperal eclampsia.

The pathology of diseases of the respiratory organs is particularly well described and the illustrations of the varieties of tuberculosis which affect the lung are accurate and carefully selected. In the chapter devoted to diseases of the digestive organs attention may be directed to the remarks on the various forms of hernia and to the other morbid conditions dependent upon changes in the location and lumen of the intestines. The student generally finds the morbid anatomy of such affections difficult to understand, but Dr. Schmaus, by the help of diagrams, is enabled to give a description which is easy to comprehend. The chapters on the pathology and pathological anatomy of the other systems of the body are equally satisfactory. We would also add a word of praise in regard to the illustrations; the majority of them are original and greatly add to the value of the work. The task of translation has been admirably carried out by Dr. Thayer.

Encyklopädie der Mikroskopischen Technik mit besonderer Berücksichtigung der Färbelehre. (Encyclopædia of Microscopy, with special reference to Staining Processes.) Edited by Professor Dr. PAUL EHRLICH of Frankfort-on-the-Maine; Dr. RUDOLF KRAUSE of Berlin; Dr. MAX MOSSE of Berlin; Professor Dr. HEINRICH ROSIN of Berlin; and Professor CARL WEIGERT of Frankfort-on-the-Maine. With many Collaborators. Berlin and Vienna: Urban and Schwarzenberg. 1903. Third Part, pp. 801–1400. Price 15*s.*

THIS treatise, which is now complete, is a very useful one; every microscopist requires at times to refer to some work of authority which will supply him with the details of the composition of preserving fluids and of staining agents and with the best methods of dealing with the various organs and tissues both of man and animals. During the last two or three decades new subjects as well as new methods of inquiry have presented themselves, such, for example, as bacteriology and the intravital colouration of the tissues, which demand that special means shall be adopted for their thorough investigation. Moreover, confusion frequently arises from various names having been applied to the same material. Thus, methyl blue has been named Bavarian blue, Helvetia blue, and diphenylamin blue; so, too, Bismarck brown is identical with Manchester brown, with Vesuvin

and triamidoazo-benzol hydrochlorate. But the reader will not only find described in this volume the best mode of dealing with the several tissues, but under the head of each chemical compound the particular purposes for which it is best adapted in microscopical research. Thus, under this same heading of the largely used methyl blue we learn that it has staining properties that render it extremely serviceable in making all cell nuclei conspicuous as well as the nucleoli of many nuclei, the non-basophile nuclei of some nerve cells being notable exceptions. It also stains the basophile granules of the blood; the basophile body of the lymphocytes and transitional forms; the granoplasm of plasma cells; the Nissl's granules of the nerve cells; the basophile granules of the erythrocytes and the central basophile substance of blood platelets; mucin; and, speaking generally, oxyphile protoplasmic bodies which have been made basophile by treatment with acids. It has the advantage of forming compounds with the tissues, the colour of which, whilst it cannot be extracted by water, is gradually removed by alcohol. It forms well-defined crystalline compounds with the acid aniline dyes (especially with eosin) which being neutral are of great importance in the manufactures. It possesses the remarkable property, first pointed out by Ehrlich, of staining the living tissues, having a special affinity for the nerves, and of thus rendering their most delicate fibrils and ramifications visible by its intravital operation. It has special advantages in bacteriological research, the larger number of bacteria becoming quickly and strongly stained in either watery or alcoholic solutions, enabling a careful observer, as Nakanishi has pointed out, to distinguish the nuclei in the bodies of the bacteria. Some bacteria, however, do not take the methyl blue stain in simple solution and special proceedings have to be adopted. Here is a translation of one paragraph dealing with the stain named "Löffler's methyl blue," which will show how satisfactorily the subject is treated, and this is only one of several methods given with equal fulness. To begin with: "Löffler's solution has the following composition: concentrated alcoholic solution of methyl blue 30 parts, 1 per cent. solution of potash 100 parts. The solution is allowed to act for five minutes and any excess of the colouring agent is removed by washing with distilled water. The bacilli of diphtheria, influenza, and typhus fever can thus be stained. In the case of sections the specimen should be immersed, according to its thickness, for periods varying from five minutes to two hours. It should then be washed with water, and successively dipped in a ½ to 1 per cent. solution of acetic acid, submitted to the action of a 90 per cent. solution of alcohol, thoroughly dehydrated with absolute alcohol, and, finally, after the addition of xylol, mounted in Canada balsam." A very full account is given of the mode of using methyl blue for the staining of nerves. For the intravital staining of the nerves the plan recommended is to bleed the animal (reptile, amphibian, or fish) and then to inject some of a ½ ½ per cent. solution of methyl blue into the bulbus aortæ after dividing the cord. In the course of from half an hour to three hours the organ, tongue, œsophagus, intestine, lung, or other part is to be freely exposed to the air, though without removal from the body, and after fragments have been excised and examined to determine the degree of staining the specimen should be placed in a fixing fluid. The advantages resulting from the use of ammonium molybdanate and of sodium phosphor-molybdanic acid and the strength of the solutions recommended by Bethe are given. Many pages are devoted to the details of micrometry and of micro-photography, which are fully described. The construction of the microscope is very shortly discussed, no optical details are given, and, on the ground that they are not used in Germany, the forms of the instrument employed in other countries are omitted.

As might be expected in a work of this kind a very long section, exceeding a hundred pages, is devoted to the nervous system and full accounts are given of the numerous methods that have been suggested or practised for displaying the nerve fibres, nerve cells, and neuroglia, for the demonstration of particular parts as the nerve sheaths and the nerve fibrils, and for the examination of pathological specimens. Professor A. Bethe of Strassburg, Professor C. Weigert of Frankfort, Professor F. Nissl of Heidelberg, Professor C. Benda of Berlin, and Professor H. Rosin of Berlin have combined to write this article and hence the subject is considered from every point of view. Professor Heidenhain of Tübingen contributes an interesting article on Paraffin and the numerous methods of imbedding specimens in that substance and of dealing with the preparations. There is a valuable and original article on a subject that has been but little studied outside Germany—viz., plastic reconstruction. It is written by Professor K. Peter of Breslau. The best methods of preparing the eye and its several parts are fully given by Professor H. Herzog of Berlin, and long articles are devoted to "silver methods," the staining of dry preparations, and to the microscopical investigation of tubercle bacilli. It will be understood from our remarks that the volume, which runs to 1400 pages, is really an encyclopædia of all that pertains to the microscope and shows what an amazing amount of work has been done by the Germans in this department of science. The bibliography appended to each article is an evidence in itself of the care which is bestowed in preserving a record of every advance in the practical use of the microscope. In one article alone, the Colouration of Mucus, we find references to about 100 works, nine-tenths of which are written by Germans, who appear by their patience and long-continued and keen observation to be especially adapted for this kind of study.

The Microscopical Examination of Foods and Drugs. By HENRY GEORGE GREENISH, F.I.C., F.L.S., Professor of Pharmaceutics to the Pharmaceutical Society of Great Britain. With 168 illustrations. London: J. and A. Churchill. 1903. Pp. 321. Price 10*s.* 6*d.*

THIS work is based upon the value of the microscope as an aid to the detection of adulteration in foods and drugs and we quite agree with the author that the merits of the instrument in this particular application have not been appreciated as they ought to be. When possible, however, preference is usually given to the evidence of chemical analysis, for although the microscope may be capable of indicating adulteration yet the extent of fraudulent mixing cannot be measured with strict precision by its means. Further, there can be little doubt that the powers of observation vary very much with different individuals, and even with considerable training with actual specimens some observers fail when put to the practical test. Mr. Greenish points out that the late Dr. Arthur Hill Hassall was strongly in favour of the use of the microscope for differential purposes in the examination of food and drugs and in skilled hands the microscope does undoubtedly prove a powerful searchlight. It was at the instance of THE LANCET that Dr. Hassall, assisted by Dr. Letheby and an artist, employed the microscope with such success in bringing to light the immense amount of adulteration practised before there was any serious attempt at legislation upon the subject. The results were published in a series of reports by THE LANCET Analytical Sanitary Commission. It is generally acknowledged that these investigations first established the value of the microscope as a means of detecting the adulteration of food. Mr. Greenish's fresh contribution to the subject is, we think, calculated to encourage the employment of the microscope

for the same purpose, as anyone studying the excellent illustrations in the volume before us will readily allow, but it is to be regretted that no illustrations of adulterated specimens appear to be included. The illustrations refer to genuine unmixed specimens. If examples of the common adulterations had been given the public analyst for one would have found the book invaluable, though he will find the excellent drawings of the normal specimens a useful guide inasmuch as they present to him, so to speak, the histology of standards. Mr. Greenish gives a more exhaustive account of the microscopical examination of drugs than of food, but it may be doubted whether the microscopical characteristics of certain drugs have any significance for the public analyst or are likely to have any application in his work. Perhaps at a future time Mr. Greenish may be induced to extend his microscopic description to actual examples of adulteration of foods and drugs. Work on these lines, admirable as it was in the days of THE LANCET Analytical Sanitary Commission, has fallen behind the times and an extension of the use of the microscope to present methods of adulteration would be valuable. The book presents a profitable field for study.

City of Liverpool: Handbook compiled for the Congress of the Royal Institute of Public Health. Issued by the Local Executive Committee. Edited by E. W. HOPE, M.D., D.Sc. Edin., Honorary General Secretary of the Liverpool Congress. Liverpool: Lee and Nightingale. 1903. Pp. 330.

THIS handbook, compiled for the Congress of the Royal Institute of Public Health in regard to the Liverpool meeting of July, 1903, is really a record of the public undertakings carried out by the city of Liverpool. The local executive committee desired that the handbook, which it has been customary to issue upon the occasion of the visit of the Institute, should be so amplified as to give an account of the establishments and undertakings of the committees of the corporation. It was also felt that some account of the institutions of the city, as well as the special features of the city and its port, would add to the interest of the volume. The deputy town clerk furnishes an introductory chapter and a descriptive account of the town-hall; the description of other public buildings is contributed by the city surveyor. The condition of Liverpool in regard to educational matters has been dealt with by Principal Dale of the University, and by Mr. Hewitt, the director of technical instruction. Very complete details of some of the works having for their object the promotion of public health are given, notably with regard to the Water-supply, by Mr. J. Parry, the water engineer; on Municipal Engineering, by Mr. J. A. Brodie, the city engineer; and on Electric Supply, which is dealt with by Mr. A. Bromley Holmes. The articles on Lighting and Locomotion are furnished by Mr. Bellamy. The Building Regulations are described by the city building surveyor, and the deputy city surveyor deals with the measures taken for the Demolition of Insanitary Areas and Re-housing. Descriptive accounts of the Baths, Wash-houses, Markets, Museums, and Police Force are added. References are made to, and in some cases short descriptions are given of, the Medical and other Charities of the city. The Seamen's Orphanage and Kindred Institutions are also described and an account of the training ship *Indefatigable* is given by Captain Bremner. An important article by Mr. M. K. Burton, the general manager and secretary of the Mersey Docks and Harbour Board, describes the work carried on in connexion with the immense shipping trade of the port. The introduction gives an interesting historical survey of the town. The work is fully illustrated by excellent plates and maps; it is probably the most elaborate and complete publication of the kind that has ever been issued.

LIBRARY TABLE.

Notes of My Life. By GEORGE WYLD, M.D. Edin. London: Kegan Paul, Trench, Trübner, and Co. 1903. 8vo, pp. 124. Price 3*s.* 6*d.* net.—The author of Christo-Theosophy prefaces this little work with the remark that having entered on his eighty-third year it has been impressed on his mind that he should briefly record some notes of his life. In the course of the "notes" he attempts to show that during the last 30 years he has been instrumental in producing the following results: 1. When acting as president of the British Homœopathic Society, by letters in the *Times* and THE LANCET, the initiation of a movement which has permanently led to a more philosophical and less antagonistic relationship between the two schools of medicine. 2. During 1877-79, the introduction into Great Britain of the substitution of vaccination direct from the calf in the place of vaccination from arm to arm—a practice which led to calf vaccination being made a Government department. 3. The inauguration of the formation of the Liberal Unionist party in 1886. 4. The demonstration by scientific experiments that spirit is the substance of matter in 1884. 5. In 1874 the demonstration by an experiment that the reason why, under anæsthetics, surgery is painless is that anæsthetics drive the soul or mind out of the body, the soul thus sometimes becoming visible externally to the body, and thus scientifically answering in the affirmative the question of thousands of years, "Does the soul exist when the body is dead?" Among the most interesting sections are those which touch on the lives of Professor Blackie, Carlyle, and Ruskin. Dr. Wyld gives a charming little picture of the first-named, of whom he writes that mentally his popularity was due to his affectionate, loving, and perfectly truthful nature, his perfectly free and outspoken, but never bitter, speech, and his habit of frequently bursting into song, a custom somewhat alarming on occasions. The notes will naturally appeal more to the family circle and to the friends of the author than to the general public who, nevertheless, will find interesting matter in the perusal of the sketch of the long life of one who has been publisher, phrenologist, allopath, homœopath, railway director, politician, student of mesmerism and spiritualism, president of the Christo-Philosophical Society, author, and would-be "law reformer." The style of the little book is simple, the diction is clear, much of it will convey pleasure, and every section will leave the conviction that the author believes in all that he has written.

Lessons in Disinfection and Sterilisation: an Elementary Course of Bacteriology, together with a Scheme of Practical Experiments illustrating the Subject-matter. By F. W. ANDREWES, M.D. Oxon., F.R.C.P. Lond., D.P.H. Cantab. London: J. and A. Churchill. 1903. Pp. 222. Price 3*s.* net.—This little book is an expansion of a course of lectures to the nursing staff of St. Bartholomew's Hospital. Dr. Andrewes has published it because there seems to be no elementary book which deals with the bacteriological aspect of disinfection in a systematic manner. He says that as sterilisation and disinfection are problems in physics and chemistry applied to bacteriology they can only be grasped from this point of view. The book is written for those who know no bacteriology, but who need sufficient acquaintance with the principles and methods to be able to understand what they are doing when they attempt to carry out processes of disinfection. Every person who is brought in contact with the sick-room will from this book be able to gather a useful, correct, and intelligible account of the manner of preventing contagion and of neutralising and destroying contagia. The illustrations, which are mostly diagrammatic, are well chosen. The section on Disinfection in Medical Cases appears to us to be specially valuable. The whole of the subject-matter is well arranged and the book is so well

written and every point is made so clear that we can unhesitatingly recommend it.

B. Bradshaw's Dictionary of Mineral Waters, Climatic Health Resorts, Sea Baths, and Hydropathic Establishments. With a map showing the stations named and several smaller maps and plans. London: Kegan Paul, Trench, Trübner, and Co. 1903. Pp. 372. Price 2*s.* 6*d.*—The new edition of this work will be found to be a considerable improvement on the former one. It gives descriptions not only of the various health resorts and chief bathing places of the world, with special notices of the most popular and important of them, but also hotels which may be recommended with confidence, the quickest routes by rail, boats, or carriages, and other important details. The dictionary is preceded by an alphabetical list of watering places classified according to the chief constituents of their waters. While the book is intended for the public it will be found of great use by the members of the medical profession. Some 20 pages of the volume are devoted to an enumeration of ailments and the places where they are most effectually treated, a most convenient list from which hints can readily be obtained by the busy practitioner before consulting larger works.

Serum Therapy, Bacterial Therapeutics, and Vaccines. By R. T. HEWLETT, M.D., M.R.C.P., D.P.H. Lond., Professor of General Pathology and Bacteriology, King's College, London. London: J. and A. Churchill. 1903. Pp. 262. Price 5*s.* net.—The author has endeavoured to give a concise account of the preparation of antitoxins and antisera, and vaccines, with notes on the treatment of disease by their agency. In all cases brief directions are given for the making and testing of the various preparations. To render the subject-matter more complete short descriptions are included of certain substances of a somewhat allied nature, such as the typhoid extract of Jez and cancroin. The book is an interesting study in the production of immunity and is a fairly complete record of the work in this field up to the present time. Fascinating though many of the theories are which are here lucidly explained, the practical physician cannot help being impressed with the small residuum of really helpful therapeutical knowledge which is at present available. We see that the ice has been broken but that the implements for saving life are at present beyond the grasp of outstretched hands.

A Monograph of the Tsetse Flies (Genus Glossina), based on the Collection in the British Museum. By ERNEST EDWARD AUSTEN. With a chapter on Mouth-parts by H. J. HANSEN, Ph.D. London: Printed by order of the Trustees. Sold by Longmans and Co., London, and by others. 1903. Pp. 319. Price 15*s.*—The preface to this book is from the pen of Professor Ray Lankester who says that in view of the circumstances that the trypanosoma in the case of the Nagana disease is habitually carried by Glossina morsitans and that a trypanosoma has been found in the cerebro-spinal fluid of nearly 70 per cent. of the cases of sleeping sickness at Entebbe, Uganda, the question arises as to whether the other species of glossina are carriers of disease germs. An accurate knowledge of tsetse flies is therefore clearly indispensable for further progress in this inquiry. Collections from all parts of the world of flies, and other insects which suck blood, are needed, accompanied by careful notes as to habits, locality, and life-history. Such collections will be received with specia welcome at the British Museum and at once investigated. The present work supplies a *résumé* of our knowledge of the tsetse flies and will enable those who may be engaged in Africa upon the investigation of the maladies produced in different animals by the various species of trypanosoma, to determine the species of glossina responsible for the dissemination of the hæmatozoon. The specimens representing glossina in the British Museum collection are in poorer condition than those of any other well-known genus of diptera, and it is hoped that this monograph will have the result of inducing those who have the opportunity to collect tsetse flies for the national collection. The book is all that we should expect it to be, considering that it comes from one of the greatest centres of the world's knowledge, and the authors must be congratulated on its completion. A bibliography of over 200 references and valuable reports by many observers are appended. The book contains a map of Africa illustrating the present knowledge of the distribution of glossina. The coloured reproductions of the work of the artist, Mr. A. J. Engel Terzi, are very beautiful.

Elementary Ophthalmic Optics. By Dr. FREELAND FERGUS.—We have now had an opportunity of carefully considering the notes which, as we mentioned in our issue of August 29th, had been sent to us by Dr. Freeland Fergus as a protest against our review of his book. As a result of doing this we have come to the conclusion, and we say it with deep regret, that Dr. Fergus's work has not received justice in our columns. We consider that in criticising the book as a trustworthy guide to optics it was not fair to say the "confusion of algebraic signs signifying direction is appalling." The formulæ employed are not superior to criticism, but Dr. Fergus has the greatest authority on his side in using them, for ophthalmologists have for a long time made constant use of them in practice and have found no error to result. As we have before said, both in our columns and in private correspondence, if Dr. Fergus would like to have his notes published in THE LANCET we shall be happy to publish them, but this of course would not remove from us the necessity of making this *amende* to Dr. Fergus for the pain we have caused him, and we do it with pleasure.

Analytical Records
FROM
THE LANCET LABORATORY.

TABLOID IRON PHOSPHATE AND IRON HYPOPHOSPHITE.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL-BUILDINGS, LONDON, E.C.)

A COMBINATION of the soluble phosphate of iron with the soluble hypophosphite of iron has been employed with advantage in cases of nervous depression associated with anæmia and also in some conditions of phthisis. Sugar-coated tabloids are now prepared containing these salts, two grains of the former and one grain of the latter being in each tabloid. One to three tabloids in accordance with the physician's directions are prescribed, taken in water after food. We find that the salts are protected against change by the tabloid coating.

DIABETIC FOODS.

(JOHN S. AUSTIN, LENZIE.)

We have examined specimens of bread and biscuits manufactured by the above baker and we find that they are not only satisfactory as regards flavour and texture, but their composition is suited to the requirements of the diabetic patient. The amount of proteid is considerably increased at the expense of the carbohydrates. Both preparations, however, contain some starch. The moisture in the bread amounted to 44·70 per cent., the mineral matter to 1·90 per cent., the fat to 14·40 per cent., and the proteid to 19·76 per cent. The proteid is thus about three times the amount contained in an ordinary moist loaf. The biscuits contained more proteid—namely, 22·66 per cent., the moisture amounting to 8·65 per cent., the fat to 20·10 per

cent., and the mineral matter to 3·10 per cent. Both the biscuits and bread keep well.

"PEPULE" PEPSIN AND ZYMINE.

(FAIRCHILD BROS. AND FOSTER, NEW YORK, AND SNOW HILL-BUILDINGS, LONDON, E.C.)

We have carefully tested specimens of these "pepules" in the laboratory and have found them to be very active in peptonising proteids and in converting starch. The combination, therefore, is calculated to be useful in the processes of both gastric and intestinal digestion.

ISAROL.

(THE SOCIETY OF CHEMICAL INDUSTRY, BASLE; LONDON AGENCY, FUERST BROS., 17, PHILPOT-LANE, E.C.)

Isarol corresponds to the official ammonium sulphoichthyolate of the Swiss Pharmacopœia and is prepared by sulphonating the product of distillation of bituminous schists found in certain Alpine districts and finally neutralising with ammonia. It is a brownish-red viscid substance with an odour resembling coal gas. It contains about 8 per cent. of sulphur. Its therapeutic properties are stated to be practically the same as icthyol. It is used in particular, with excellent results, in chronic skin diseases and in gynæcological practice.

OLD OTTERBURNE WHISKY.

(STROMNESS DISTILLERY, ORKNEY, N.B. SOLE AGENTS, MOSS AND POTTER, THETFORD, NORFOLK.)

This spirit is described as a pure all-malt Scotch whisky and we believe this description to be correct. The analytical results, at any rate, which we obtained conform to those yielded by a genuine all-malt or unblended spirit. The figures in regard to secondary products were as follows, given in grammes per hectolitre of absolute alcohol present: acidity reckoned as acetic acid, 24·00; aldehydes, 15·40; furfurol, 2·50; ethers reckoned as ethyl acetate, 61·60; and higher alcohols, 220·00. Other analytical results were as follows: extractives, 0·12 per cent.; mineral matter, 0·02 per cent.; alcohol, by weight 42·29 per cent., by volume 49·81 per cent., equal to proof spirit 87·29 per cent.; and fixed acidity reckoned as tartaric acid, 0·012 per cent. The last figure is an indication of storage in sherry casks. The flavour is malty though delicate.

LIQUOR COLCHICINÆ SALICYLATIS (HOPKINSON'S).

(BAISS BROTHERS AND STEVENSON, LIMITED, JEWRY-STREET, LONDON, E.C.)

This preparation has been for some time before the profession and the therapeutic efficiency of this particular combination of the alkaloid with salicylic acid is recognised in the treatment of chronic rheumatism and gout. It is stated that this preparation, unlike the ordinary combination of colchicum wine and salicylic acid, is without depressing effect or any undesirable action upon the renal and hepatic organs.

"PROTECTYL."

(THE CHEMICAL DISCOVERIES, LIMITED, 60, HAYMARKET, LONDON, S.W.

"Protectyl" is a germicidal preparation which is said to effectually prevent venereal infection when properly applied and we can well believe that it would have that effect. It is a clear, glairy, mucilaginous fluid containing, according to our examination, salicylate of mercury. The fluid is contained in a collapsible tube provided at its aperture with a conical piece of soft indiarubber. According to bacteriological experiment *in vitro* "protectyl" rapidly kills streptococci and gonococci. In an address delivered before the Medical Society of Aix-la-Chapelle by Dr. Ernest J. Feibes, the following tests are cited as proving the preventive efficiency of the preparation:—A drop of pure gonorrhœa pus was lightly rubbed into the mucous membrane of the urethra and "protectyl" was applied one minute after. There was found to be no infection. In a similar experiment "protectyl" was applied three minutes after and still there was no infection. In a third test the application was applied six minutes after with the same result. Dr. Feibes confidently suggests that "protectyl" affords a means also of safeguarding against syphilitic infection.

BANCROB.

(M. FRANCIS AND CO., 4A, THE POULTRY, NOTTINGHAM.)

This consists of a small square slab of well-known antiseptic materials which is intended for use in the hair-dressing shop and for the rapid preparation of an antiseptic wash for sterilising razors, scissors, combs, brushes, &c. The use of this tablet suggests a cleanly method which should be universally adopted in hair-dressing establishments.

SUPRARENALIN.

(ARMOUR AND CO., 48A, HOLBORN VIADUCT, LONDON, E.C.)

We have received a specimen grain-tube of suprarenalin and a one-ounce bottle of suprarenalin solution from the above firm. The former is the active principle of the gland and its physiological action is the same—that is, it is a powerful astringent and hæmostatic, which may be used in minor operations without hæmorrhage resulting. Suprarenalin is a fine crystalline powder readily soluble in acids or alkalies. It can be boiled with water and so sterilised without impairing its physiological capacity. The suprarenalin solution is of 1 in a 1000 strength and affords a convenient means of applying the suprarenal gland principle; it may easily be sterilised by boiling.

NON-ALCOHOLIC GRAPE "WINES."

(AGENCY, REINHEIMER AND CO., 14, THE AVENUE, SURBITON, SURREY.)

These are excellent preparations of Pasteurised grape-juice bottled at Worms on the Rhine. We have received several varieties, such as white, red, dry, and sweet. We give the analysis of three types:—Red "wine": alcohol, by weight 0·53 per cent., by volume 0·66 per cent., equal to proof spirit 1·16 per cent.; extractives, 17·00 per cent.; mineral matter, 2·80 per cent.; sugar, 14·28 per cent.; fixed acidity reckoned as tartaric acid, 0·66 per cent.; and volatile acidity reckoned as acetic acid, 0·048 per cent. The "wine" had the agreeable flavour of the grape and with effervescing water a very refreshing beverage may be prepared. As will be seen, the "wine" is, for practical purposes, non-alcoholic. We could find no preservatives and, indeed, within a few hours of opening the juice was in a state of brisk fermentation. White "wine" (dry): alcohol, by weight 1·06 per cent., by volume 1·34 per cent., equal to proof spirit 2·34 per cent.; extractives, 13·68 per cent.; mineral matter, 0·27 per cent.; sugar, 11·40 per cent.; fixed acidity reckoned as tartaric acid, 1·215 per cent.; and volatile acidity reckoned as acetic acid, 0·048 per cent. This "wine" contains nearly 5 per cent. less sugar than the other "wines" examined; the flavour was agreeably acid and characteristic of fresh genuine grape-juice. "Schlosberg": alcohol, by weight 0·53 per cent., by volume 0·66 per cent., equal to proof spirit, 1·16 per cent.; extractives, 16·74 per cent.; mineral matter, 0·30 per cent.; sugar, 13·88 per cent.; fixed acids calculated as tartaric acid, 1·04 per cent.; and volatile acid reckoned as acetic acid, 0·018 per cent. This "wine" had also the same satisfactory features of the specimens previously described. All were practically free from alcohol and sound in condition, the amount of acetic acid being inappreciable. We have not before examined specimens of grape-juice as satisfactorily preserved as these, whilst they are free from chemical preservatives. With effervescent water they make a wholesome, palatable, and refreshing beverage.

THE ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Brussels, Sept. 1st.

AT all great international congresses there are a large number of persons who profit by the occasion to enjoy a cheap holiday. If they can only find a pretext for enrolling themselves as members they profit by a reduction in the railway fares and they can enjoy the special advantages and facilities for participating in various excursions. There are also public receptions, banquets, and many functions which it may be pleasant to attend. Now if over and above these considerations the congress meets in some interesting country, like Spain or Hungary, that is outside the more frequented tourist routes then the temptation to attend the congress is very great. Of course, the more people present the greater the moral influence of the congress. But, for my part, I have not found that the attendance at the meetings of the sections varies very much. There are at these congresses several hundred earnest members and they are always there and always working. The others, on the contrary, though they may be counted by the thousand, make but brief visits to the sections. On the present occasion these 1000 or 2000 pleasure-seekers are nearly absent and there should be some 1300 or 1400 members who will comprise a much greater proportion of workers. This cannot be considered otherwise than as an improvement, particularly as there has been no falling off in the number of delegates. It is those persons who make the congress a pretext for a holiday who have fallen off, probably because Brussels is so near and so well known. On the other hand, there is no falling off in the attendance of practical sanitarians and the debates promise to be not only as interesting but probably more interesting than on any previous occasion. In any case they have never been better organised. Not only were circulars issued some months before the dates announcing what were the subjects on which reports would be presented to the Congress, but a very large quantity of these reports have been written and printed in time to be distributed to the members before the Congress meets. What will make a huge volume is already in the hands of the members. Indeed, there is far more printed material than can possibly be read; but in any case everyone can at least read three or four reports on the two or three subjects in which he is especially interested before the opening of the Congress. Then in the sections where these subjects are to be debated the members attending will be in full possession of the main facts and arguments submitted for discussion. In such circumstances the discussions should be to the point and the conclusions should be appropriate and practical. This is not always the case at these congresses.

Though late in taking official cognisance of these congresses the British Government are now amply represented. The Local Government Board is represented by Dr. Theodore Thomson and Dr. S. M. Copeman; the Home Office by Dr. T. M. Legge, His Majesty's medical inspector of factories, and Miss Adelaide M. Anderson, principal lady inspector of factories and workshops. The Board of Works proposed to send Dr. W. H. Corfield, one of the oldest and most faithful attendants at these congresses, who used formerly to lament that Great Britain, and especially the British Government, was so poorly represented. Alas, Dr. Corfield has unexpectedly died, but his colleague from the same department Mr. J. B. Westcote, architect and surveyor to His Majesty's Office of Works, is here. The War Office sends Lieutenant-Colonel A. M. Davies, R.A.M.C., sanitary expert attached to the Army Medical Service, and Major T. McCulloch, of the same service. The Colonial Office send Sir Patrick Manson and Ireland sends Lieutenant-Colonel D. Edgar Flinn, medical inspector of the Local Government Board for Ireland. It cannot be said this time that the British Government is not taking adequate part in the proceedings. The British colonies are also following suit, for Ceylon is represented by Dr. H. M. Fernando; the Fiji Islands by Mr. B. Glanvill Corney; Northern Nigeria by Dr. W. H. Londley; New Zealand by the Hon. W. Pember Reeves, chief agent for the colony in London; and Queensland by its general agent, the Hon. Sir Horace Tozer, K.C.M.G.

Apart from this official and governmental representation the local authorities in England have taken much greater interest in the proceedings than on any previous occasion. The presence is announced of many practical hygienists—namely, the inspectors of nuisances or sanitary inspectors from a large number of towns. Of course a considerable number of British medical officers of health have also been appointed to attend the Congress but this was the case at former congresses. Among these medical officers of health I note Dr. W. Collingridge for the City of London, Dr. Francis J. Allan for the City of Westminster, and Dr. E. H. Snell, the medical officer of health of Coventry. Professor Sims Woodhead of Cambridge University and Professor Delépine of Victoria University are here. The following British bodies, among others, have appointed delegates: the Association of Medical Officers of Schools; the Bedford College for Women; the British Gynæcological Society; the British Medical Association; the Charing Cross Hospital Medical School; the Epidemiological Society (nine delegates); the Institution of Mechanical Engineers; King's College, London; the Mansion House Council on the Dwellings of the Poor; Queen's College, Cork; the Royal College of Surgeons in Ireland; the Royal Institute of British Architects; the Royal Institute of Public Health (ten delegates); the Royal Medical and Chirurgical Society; the Sanitary Institute, Parkes Museum (seven delegates); the South-Eastern and Chatham Railway Company; University College, London; the University of Adelaide (Australia); the University of Birmingham; the University of Bombay (India); the University of Cambridge; the University of Edinburgh; the University of Glasgow; the University of St. Andrews; and the University of Sydney (Australia). Never before has Great Britain been so well represented, and as in all my descriptions of previous congresses I have complained of the paucity of British delegates it is with the greatest pleasure that on this occasion I find myself in a position to speak in quite a different manner on this subject.

The other Governments which have sent official representatives are those of the German Empire, Argentine Republic, Austria-Hungary, Belgium, Brazil, China, the Independent State of the Congo, Corea, Cuba, United States of America, Denmark, France, Greece, Guatemala, Italy, Japan, Luxembourg, Mexico, Monaco, Holland, Peru, Persia, Portugal, Roumania, Russia, Siam, Norway and Sweden, and Uruguay. So it will be seen that the international character of the Congress has been well maintained.

THE OPENING OF THE CONGRESS.

Brussels, Sept. 2nd.

At nine this morning a vast concourse of people gathered in the splendid central hall of the Palais des Académies. Many of the veterans of sanitary reform from the leading nations of the world were there and a great variety of uniforms helped to enliven the scene. It was 9.40 A.M. when the approach of His Highness Prince Albert was announced. He wore the uniform of a colonel of the Grenadiers and was accompanied by the Minister of Foreign Affairs and the Minister of Public Instruction. It was the Minister, M. FAVEREAU, who opened the proceedings by expressing his thanks to the 27 Governments that had accepted the invitation of the Belgium Government and had supported the Congress. They were proud to think that the two first international congresses met to discuss hygiene had selected the town of Brussels for their deliberations and he now invited His Highness to open the present Congress.

Prince ALBERT at once rose, welcomed all present, and said that he considered himself highly honoured in being called upon to open an assembly of such eminent men of science. He was glad to salute the delegates of the various Governments, of the universities, of the municipalities, and of the learned societies. It was not the first time that they had come to Belgium and their presence had spread the knowledge of hygiene so that now the death-rate was reduced considerably and cholera epidemics were held in check. Hygiene had thus succeeded in preserving the public health and greatly helped in the transformation of society that was taking place. These changes led to great agglomerations of people in the large cities and this gave rise to special dangers which could only be overcome by the aid of hygiene. Such progress in sanitation was

opposed by the apathy and indifference of the thoughtless and the want of financial means. But the Congress would help to spread a desire for knowledge, while in combating sickness they were adding to the wealth of the country. Indeed, many of the subjects to be discussed were of general public interest. This was notably the case in regard to tuberculosis and to infantile mortality. It seemed as if all the enemies of a healthy life concentrated their force of attack on helpless infants. It was for hygiene to enter into our customs. The great endeavour should be to overcome ignorance. It was the glory and the satisfaction of men of science to know that they contributed to this end and in congratulating them on their noble mission Prince Albert declared the Congress to be open.

M. BECO, the President of the Congress, then delivered a long address showing what the Royal House of Belgium and what the ruling sovereigns and chiefs of other European States had done to forward the cause of sanitary science and the United States of America but did not respond. M. HENRI MONOD spoke for the French Government and Professor G. SIMS WOODHEAD for the British delegation. Dr. CELLI said a few words for the Italians, Dr. DI MISCHIMA spoke in German for the Japanese, Dr. KIAER for Norway, Dr. SPRONCK for Holland, Dr. SCHMITT for Switzerland, and Dr. R. DE ARELLANO for Mexico. The Prince then declared the sitting closed and proceeded to visit the small sanitary exhibition which is held in connexion with the Congress.

In the afternoon all the sections met and were well attended in spite of the great heat. In the evening the members of the Congress were received at the Palace.

Brussels, Sept. 5th.

As usual in all congresses the programme for most of the sections has been overcrowded. Nevertheless a great deal of time has been saved by taking all the reports as

M. E. BECO,

President of the Eleventh International Congress of Hygiene and Demography and Secretary-General of the Ministry of Agriculture, intrusted with the general direction of the Public Health Service of Belgium.

the success of the international congresses of hygiene. In the course of his remarks M. Beco quoted a part of the speech delivered by His Majesty King Edward VII. when, as Prince of Wales, he opened the Congress of Hygiene held in London in 1891.

The Secretary-General of the Congress, Dr. PUTZEYS, then followed with further details about the congresses, and M. DE MOTT, senator and mayor of Brussels, said a few words to welcome the members in the capital of Belgium. There now ensued the habitual and long series of speeches from the representatives of the different nationalities. This Dr. BROUARDEL, with his usual refined, diplomatic, and gracious suavity, commenced in appropriate terms. He was followed by General SCHJERNINGS for Germany and the well-known statistician Herr MAINA-STERNEGG for Austria. Dr. CSATORY spoke for Hungary and Dr. CORTEZO for Spain. Dr. HARRINGTON was called upon to speak for

read and commencing the discussions forthwith. THUS the principal function of the reporters has been to reply to criticisms rather than to expound and to read their reports. In this manner the resolutions were reached at an earlier stage and I think it will be found that a very large number of important motions have been carried. There might, however, be no great merit in this were it not also a fact that the motions were not hastily and thoughtlessly adopted. On the contrary, the discussions which I have heard were very earnest, the speakers nearly all were specially qualified, and every word of the motions was most thoroughly studied in all its bearings, so that the opinion of the majority, and it was very often the unanimous opinion of the whole section, might be faithfully expressed. The sections have also all been well attended; indeed, they were in some instances too well attended, for even the most spacious rooms have been so crowded as to become unbearable. How different this is from

many of the previous congresses has been the subject of many comments. There can be no doubt that on the present occasion the tourist element has very sensibly distinguished itself by its absence. The members of this Congress are really in earnest and therefore they attend to the business of the Congress. Thus with a smaller total membership there is a much larger attendance at the sectional meetings.

But if much work has thus been accomplished, relaxation has also been provided, and this in a well-organised manner. There have been no storming of buffets and no free fights for the sake of some small privilege, none of the unseemly scenes which other congresses have had to deplore. The members had no difficulty in gaining access to the great hall where the opening ceremony was held and they penetrated the Royal Palace with equal facility on the evening of the same day. They were invited to assist at what is called here a *raout*, a term which has the advantage of vagueness in its meaning. It does not mean a supper, it does not mean a ball, but it could possibly mean something that could be coaxed into being a little bit more lively than a conversazione. In any case it is a function for which full dress and the display of all medals, stars, and orders are indispensable. To the stranger it at least has this advantage, that it enables him to visit the palace not as a tourist who is only shown empty rooms with the furniture covered over and nearly all the shutters closed; on the contrary, all is brilliantly illuminated, the rooms are crowded, and everyone is dressed to his best. Then, if it is a royal palace the royal family is there; if it is a muncipal palace then the burgomaster is there in his civic robes. On the present occasion we have had a *raout* both at the Royal Palace and at the town hall. His Majesty King Leopold II. being absent we were received by His Highness Prince Albert. The Prince talked pleasantly to the members of the Congress as he slowly progressed from one end of the Palace to the other. Having thus made the acquaintance of many members of the Congress, Prince Albert invited them to take some light refreshment and the doors of the room containing the buffet were thrown open. On such occasions much inconvenience would be avoided if waiters could carry trays round containing the light drinks so needed when, as happened on this occasion, there is exceptionally hot weather. The Palace is a modern structure, the rooms are richly furnished, and there are a few celebrated pictures on the walls.

No comparison can be established between the royal and municipal palaces. The town hall of Brussels is unique. Its magnificent façade is some 600 years old. Its graceful tower, its rich Gothic architecture, its history and its souvenirs, its paintings, its tapestry, and its innumerable works of art all combine to render a visit to this edifice one of the most interesting experiences that could possibly reward a congressist for his work and fatigue. Round and round we went through all the rooms, passing and repassing, never tired of admiring, for instance, the great banquet hall with its art tapestry representing the different trades; the hall for marriages, with its allegorical frescoes; the council hall, where Count Egmont and Count Hoorn were condemned to death, and *per contra* the various proofs given of the ultimate triumph of the citizens of Brussels. Here, indeed, we were walking through history and were having the honour of being received in one of the buildings where through long ages so much had been done for the cause of local government and civic freedom. This was, indeed, a most enjoyable evening, for there was so much to see and to interest.

Yesterday we had a strange entertainment. The handsome Alhambra Theatre was reserved for a special gala performance, where the whole Congress assembled again in full dress. Now a gala performance in honour of an international audience is not easily arranged. On such an occasion there is a natural desire to show what the nation which entertains is capable of doing; on the other hand, if the guests are to enjoy themselves the performance should be comprehensible to all, however their languages may differ. In such circumstances dancing and music naturally suggest themselves, and an attempt was made to find something Belgian and yet that would be understood by all. So resort was had to the *mimodrame*, a play acted but not spoken. A work of the Belgian Zola was selected and we had *Le Mort*, by C. Lemonnier and P. Martinetti, rendered by the Artistic Company for the Propagation of Belgian Works. It was marvellously done but very dreadful. It might be construed as an essay on the force of suggestion. Two brothers having murdered and robbed an individual suggest themselves into seeing their victim's phantom arise on all sides. Finally, as the two brothers, exhausted, lay asleep side by side the dead man rises up between them. They strike each other thinking that they are striking the ghost, and thus the one is killed by the other. Nothing could be more ghastly, but the rendering was most enthralling though gruesome. Afterwards there was some very artistic dancing and throughout we had excellent music performed by the orchestra of the Grand Opera, the Théâtre Royal de la Monnaie. Thus far both in its pleasure and its work the Congress has progressed most satisfactorily.

Brussels, Sept. 8th.

Even on Sunday the congressists were allowed no rest; indeed, they had to be up and about earlier than usual. A special train was waiting for them at the Northern Station timed to start punctually at 8 o'clock. A second train was to start 20 minutes later, but most of the visitors and guests were in time for the first train; consequently every seat was taken, while in the second train some of the carriages were almost empty. In less than an hour the trains, containing close upon 600 members of the Congress, reached Antwerp, and as the members of the Congress left the station a ticket was given them bearing the name of an excursion steamer. These steamers were to start a little after noon and in the meanwhile we were all requested to go to the town-hall. Here we had a short quarter of an hour to stroll round and to admire the historical paintings and the Renaissance ornamentation of this splendid sixteenth-century edifice. Then in one of the largest rooms a few words of welcome were uttered by the burgomasters and the members of the Congress were requested to form themselves in five groups and for that purpose to enter the room bearing the number of the group selected. Each of these groups would visit different sanitary services and have different conductors, to whom the members were introduced on entering the room allotted to them. This was all very well arranged, but there was one mistake which caused considerable confusion. As the various rooms all opened on to a gallery that overlooked the State staircase it would have sufficed to place one steward on this gallery who should have given each group the signal when to start and should have seen that one group got well away before he allowed the next to go out. As it was, several groups left their respective rooms at the same time, collided on the stairs, and got inextricably mixed. The leaders, whom the members had never seen before and who wore no insignia, were soon lost to many of us and when the large square in front of the hall was reached the congressists appeared like scattered sheep in search of their shepherd. However, they soon got off with one or the other groups, though perhaps not the group they had intended to follow, and were taken to see some of the sights of Antwerp from the sanitary point of view. One party travelled along the main sewers in boats. Others went to see the Bureau d'Hygiène and all its dependencies. The third party visited the hospitals and another party an orphans' home, a sailors' home, and a dead-house. But no inconsiderable number of members played truant, deserted the groups, and went off on their own account to see the celebrated Antwerp picture gallery, the cathedral, or the Musée Plantin. Wherever the members went they all managed, however, to be in good time on the quays close to the old Steen fortress where the four excursion steamers were waiting. The excursion lasted three hours. The steamers first went seawards as far as a point rejoicing in the name of Pipe-de-Tabac, then turned back, passed in front of Antwerp along the whole line of the docks, travelling up stream to the shipbuilding yards and floating dock, and only turned back to Antwerp when they had reached Hoboken. During the journey liberal lunch was served. As there was nothing else to do but to eat, drink, and be merry, it may be said that in this also the congressists demonstrated that they were not devoid of special aptitudes. Among the Belgians, on the ship and round the table where I sat, some of the most inveterate political adversaries were placed close to each other. It was a real pleasure to note how completely they seemed to forget their antagonism and joined together as if they were the best of friends, only thinking how to promote the general good-feeling. It was half-past three when we landed and there was still time to visit

the handsome zoological gardens before the special train took us back to Brussels, where for once we were able to retire at an early hour.

Not so the following Monday evening, for this was the night of the great banquet. So numerous were the guests that even the large hall of the Hôtel Métropole could scarcely hold us. A very elaborate and excellent dinner was served, accompanied by a large and choice selection of wines. M. Beco, as President of the Congress, occupied the chair, and on his right sat M. Francotte, the Minister of Industry and Labour. Then came Professor Brouardel, President of the Congress Permanent International Committee. On the other side were M. de Mott, Mayor of Brussels, and Professor von Köhler, representing Germany. Grouped as close as possible were the official representatives of the different nationalities. So large was the assembly that a trumpeter was employed and silence was imposed by the sound of the bugle when the time arrived for the toasts.

M. BECO, of course, was the first to rise and in enthusiastic terms proposed "The King." He urged that without distinction of country His Majesty Leopold II. had been an active agent of civilisation and of peace throughout the world. He also spoke of hygiene as promoting the sentiment of solidarity and expressed his thanks to all the Governments which by appointing official delegates to attend the Congress had forwarded the cause of international sanitation. He concluded by a graceful allusion to the help given by Prince Albert.

M. FRANCOTTE, the Minister of Industry and Labour, said he liked to hear, and he did hear on all sides, that the Congress was a success, that it had been a pleasant Congress, and that it would prove a fruitful Congress. Such being the case, he was most anxious to express his gratitude to the President and to the general secretary of the Congress. In the name of the Government he wished to honour in the person of M. Beco one of the greatest administrative forces, and in Professor Putzeys one of the most powerful educational forces, of the country. Our nation, said M. Francotte, is but small, but we love it the more. The national soul has been formed by our common suffering and labour. We are pleased to show our country and pleased by the marks of approbation we receive. The principal groupings or associations formed to promote human welfare have selected Belgium for their centre. He hoped that in his country some of the greatest problems of the day would find their solution. He thanked the foreign Governments for sending representatives and the members for coming. They brought with them the most precious of all wealth—the wisdom of the world. In the name of the Government he would promise that he would strive to carry out in practice some of the resolutions voted by the Congress. In conclusion, he wished the members present the best of hygiene—happiness.

Professor BROUARDEL now rising, exclaimed, "Yes; the Congress is a success, but Belgium is not a little country, since it can achieve such great things." After 25 years of experience he did not think that any congress had displayed so much assiduity in its work or shown evidence of such careful organisation. Everyone had helped, and everyone had confidence in M. Beco and Professor Putzeys. Their hard work had made hygiene advance and sanitary legislation would benefit in many countries.

M. DE MOTT spoke next, alluding to the first international assembly ever gathered together to discuss public questions, which met in Brussels in 1852.

Then came various speakers of different nationalities, but none were received with so much applause as the Chinese delegate, perhaps because this is the first time a representative of that great nation has spoken on such an occasion. He explained that the Chinese were a very earnest people and when they took a matter up they did it very thoroughly. He proposed to translate into Chinese some of the proceedings of the Congress and hoped that this would lead to the spread of knowledge on the subject in his country.

Dr. CHARLES HARRINGTON spoke for the United States and Professor SIMS WOODHEAD for Great Britain, and it was not till a late hour that the members rose.

THE CLOSING OF THE CONGRESS.

This afternoon the Congress has been formally closed at the general meeting held in the great hall of the Palace of the Academies where the opening ceremony had taken place M. BECO presided and Professor PUTZEYS read out all the resolutions adopted by the sections, approved by the International Committee, and now submitted to the Congress as a whole. Excepting two verbal alterations they were all accepted by this the general assembly of the Congress.

Professor VON KÖLHER, director of the Berlin Imperial Institute of Hygiene, now rose to invite the Congress to meet four years hence at Berlin. He alluded in grateful and flattering terms to the admirable organisation of the Brussels Congress and promised that the Germans would strive to show themselves worthy of so good an example.

The proposal was unanimously accepted and Professor BROUARDEL now joined in the general praise of the Belgian organisers. He said that in six days the Congress had held about a hundred different sittings, that all the sections had carried out their programme, and that on no occasion had he known so much assiduity and such a large attendance at the sections.

Then followed the usual series of speeches of thanks which were very hearty but lacking in originality. The representative of the United States Government, Dr. HARRINGTON, said that he was authorised to invite the Congress to meet at Washington in 1909 and hoped this proposal would be accepted. Dr. G. H. F. NUTTALL said a few words on behalf of the British members of the Congress, and after other nationalities had had an opportunity of expressing their gratitude it was announced that M. de Montricher was organising a sanitary congress at Marseilles for next April at which any member of the present Congress would be very welcome.

It was now the turn of the Belgians to reply, and M. BECO accepted the compliments which he had received not for himself as much as for an army of assistants who had worked under him whose names were unknown and without whose devoted and able aid the Congress would not have been a success. He also spoke of the exhibition and finally thanked the members of the press for their effective and indispensable assistance.

Then the Minister of Agriculture rose to close the Congress, which had proved a success even beyond the most sanguine hopes of its promoters. In the name of the Belgian Government he thanked the promoters of this success. These were the foreign governments which had made so judicious a choice of delegates and the members who had displayed their vast knowledge. Then there were the reporters who had accomplished a heavy and ungrateful task, but many of the reports would remain as monuments. Then there was the press and finally the general public. All engaged in the work had contributed to the welfare of humanity and he hoped that during the four years separating them from their next meeting much suffering would be prevented and many lives would be saved.

The Congress was then declared closed, but the members are not yet dispersed. To-morrow at seven in the morning several hundred members are going to the Borgoumont Asylum and to Spa; in fact, the excursions will last three days, so that though some members are returning home at once a large number still remain.

SUPERANNUATION ALLOWANCE.—Dr. Richard Purnell Tyley, who for 36 years has been medical officer of the ninth district of the Axbridge (Somerset) union, has been granted a superannuation allowance of £46 per annum.

TRUE CHARITY.—Some little time ago a Hull fisherman named Barry was knocked down by an engine in St. Andrew's Dock and was so terribly injured that he had to undergo amputation of both legs and of both arms. The operation, which was performed in the Hull Royal Infirmary by Mr. E Harrison, was quite successful and Barry made an uneventful recovery. Mr. Harrison communicated with Mr. C. H. Wilson concerning the case and a subscription was opened for providing Barry with artificial limbs. The Surgical Aid Society, on becoming aware of the case, wrote to say that it would be glad to supply the artificial limbs free of cost. This generous offer was promptly accepted and the money already subscribed for the purpose is now, with the consent of the donors, to be devoted to enabling Barry to obtain some light employment. The Surgical Aid Society deserves every credit for its act.

THE LANCET.

LONDON: SATURDAY, SEPTEMBER 12, 1903.

Referred Pain.

IT has been universally recognised for many years that irritation of the peripheral extremity of one branch of a nerve may cause pain to be felt, not at the place where the irritation exists, but in the area of distribution of some other branch of the same nerve or nerve root. Familiar examples of this "sympathetic" or "referred" pain are numerous. Caries of one tooth may cause aching of other teeth on the same side, or the pain may be attributed to an area supplied by some other branch of the fifth nerve. In early disease of the hip-joint the child may feel the pain, not in the affected articulation, but in the knee of the same side, and many hospital surgeons have seen children who have been brought for treatment with a poultice, or some other equally efficacious application, on the knee, while the only lesion present has been in the hip. HILTON many years ago laid the foundation of the doctrine of "sympathetic" pain when he showed that some obscure pains occurring in various morbid conditions could be thus explained. Dr. HENRY HEAD has done good service more recently in calling attention to this pain reference and by systematising our knowledge on the subject, for he showed that each cutaneous nerve was associated with the nerve-supply of certain internal organs and structures, and thus he laid down definite rules for the attribution of referred cutaneous pain to its proper source. Various explanations have been advanced to account for this transference of pain. According to one theory it is explicable simply by induction of a current in adjacent fibres in a manner comparable to the electrical induction in two adjacent but unconnected wires. Certain physiological experiments appear to favour this explanation but it is probably not correct. According to another explanation the nervous centre, spinal or cerebral, which receives the afferent impulses is so unduly excited that in its disturbed condition it attributes the afferent impulse to the wrong afferent nerve. Yet another theory suggests that the transference takes place in a still higher plane—namely, in the sensorium itself. A point of very great importance in endeavouring to distinguish between these rival theories is that in some cases there is no true reference of pain but the "sympathetic" cutaneous area is hyperæsthetic. This is most easily explicable on the idea that the corresponding spinal centre is disturbed by unusually severe afferent impulses which render it unduly sensitive to ordinary impressions.

The point of origin of the primary afferent impulses may be a muscle, a joint, a bone, or a viscus. In this connexion it is of interest to observe that most of the abdominal viscera are quite incapable of giving rise to the ordinary sensation of pain. In THE LANCET of August 22nd we published a lecture by Mr. C. W. MANSELL MOULLIN who brings out this point very clearly, for he shows that ulceration and gangrene of the stomach and intestine need not of themselves give rise to any painful sensation, that the bowel may be cut and sutured, and that operations may be performed on many other abdominal viscera without causing any pain, but that the abdominal wall is extremely sensitive, an inflammation of it or traction on it causing acute pain. He further showed that in inflammation of the appendix it is very common to find patches of cutaneous hyperæsthesia; in most cases this area is the area corresponding to the eleventh dorsal nerve, though the areas corresponding to the tenth and twelfth dorsal may also be affected. This hyperæsthesia is attributable to "reference" and thus may prove of diagnostic value in obscure cases of appendicitis. The stimuli may come from the muscles or from branches distributed to the abdominal wall, but they do not come from the peritoneum itself. So long as the inflammation is limited to the peritoneum no true cutaneous hyperæsthesia is found, and therefore when this hyperæsthesia is present it is an indication that some other structure is involved; while if it has been present and suddenly disappears but no corresponding improvement occurs in the general symptoms it may be taken as very probable that the appendix has become gangrenous and that only immediate operation can prevent general septic inflammation of the peritoneum. There is a somewhat analogous phenomenon closely allied to referred pain to which Hilton drew attention. He showed that a very close connexion exists between the nervous supply of a joint and the innervation of the associated structures—namely, the muscles acting on the joint and the skin covering it—the several nerves arising as a rule from the same nerve root. As a consequence of this intimate nervous connexion any inflammation of the joint—that is to say, of its synovial membrane—is immediately followed by a tonic contraction of the muscles acting on the joint; this causes fixation of the bones entering into the articulation and thus the pain and the increase of inflammation are avoided which would surely follow the continued movement of the joint. This muscular spasm cannot be regarded as entirely voluntary, for though it may diminish it does not altogether disappear during sleep and, indeed, it may first appear at a time when there is no distinct pain in the joint, the articular inflammation manifesting its presence through the reflex arc before it reveals itself to the sensorium.

We find an exactly similar evocation of muscular rigidity when the peritoneum is inflamed, as Mr. E. STANMORE BISHOP points out in this issue of THE LANCET. The whole peritoneal cavity, he suggests, may be looked upon as an articulation designed for easy movement between the intestines and the abdominal wall. The nerve-supply of the peritoneum is intimately associated with the nerve-supply of the abdominal muscles and of the superjacent skin. The earliest intimation of a peritonitis is afforded by rigidity of the muscles of the abdominal wall. If the peritoneal inflammation is widespread the area of rigidity will be widespread also, but if the peritonitis is localised only the muscles immediately over the inflamed area may be involved. The practical importance of this phenomenon is obvious: it is a definite sign of peritonitis at the earliest

possible stage and at a time when surgical intervention may prevent such extension of the disease as would render treatment hopeless. It is important to bear in mind that this abdominal rigidity is only a temporary sign; if it be disregarded the absorption of toxins from the peritoneal cavity will surely occur and the muscular spasm will be replaced by paralysis. It will then in all probability be too late to save the patient's life. The importance in diagnosis of this intimate connexion between deep-lying structures and the cutaneous and muscular nerves of the part is obviously great and the value of such signs as localised pain and tenderness is especially appreciated by those who devote much attention to abdominal surgery. Yet there is some liability that mistakes may be made in diagnosis by ignoring other possible explanations of pain which may belong to another department of medicine. Mr. STANMORE BISHOP, in the paper already mentioned, gives a very good example of this. A pelvic pain, worse at menstrual periods, had lasted for 20 years and was supposed to be connected with ovarian disease, but it persisted after both ovaries had been removed. Later it was found that a calculus was impacted in the lower end of the left ureter and when this was taken away all pain ceased.

Privileged Medical Communications.

IN a paper read at a recent meeting of the Massachusetts Medical Society Dr. DAVID W. CHEEVER of Boston recently reviewed and compared the provisions of the law in various American States and in some European countries, particularly in Great Britain, with regard to the giving of evidence by medical witnesses. The difficulties which not infrequently arise when a medical man is asked in a court of law to divulge matters which have become known to him in his professional capacity are felt by the medical profession throughout the world, but the extent to which the law compels, or endeavours to compel, the giving of such evidence varies in different countries as well as in different classes of cases. It varies also in its incidence, presumably in all countries, according to the degree of sympathy which the judge may feel towards a witness placed in an unenviable position. In dealing with the question from the medical point of view Dr. CHEEVER suggests rules which to us hardly seem to cover all possible contingencies. He proposes that "It shall be considered unprofessional for a physician to divulge anything confided to him by a patient unless (1) with the patient's consent; (2) to defend himself when accused; (3) to expose crime. In all other cases, such professional confidences shall be classed as 'privileged communications.' It shall be a question of honour whether the physician shall feel it his duty to repeat such a 'privileged communication'; if he conscientiously declines he shall be protected; if he testifies it shall be before a judge in private." It will be seen from this that the broad principles upon which Dr. CHEEVER would desire the medical man to base his conduct practically coincide with those by which the medical man is guided in this country.

The matter is one, however, in which it is easier to lay down broad principles than it is to frame definite rules to meet more or less concrete instances. The confidences of a patient are of two kinds: he may impart to a medical man who is attending him a secret which has nothing to do with his case, as he would to any other person in whose discretion he had confidence, and on such an occasion the medical man will be able to guide his conduct by the rules which would direct that of any other honourable man in whom trust might be laid. In a larger number of instances, however, the secret of the patient held by the medical man is known to him in his professional character only, and is either the result of his skilled observation or is confided to him as part of the history of the case. This is the professional secret properly so-called to which privilege should attach of a different character, although in relation to both classes of case the conduct of the medical man will be regulated by the same dictates of honour and discretion. With regard to both classes it must be borne in mind that the court of law is not the only place in which a secret may be revealed, and that absolute silence upon the subject at all times and in all places will in a very large number of instances prevent all possibility of the medical man being involved in a legal inquiry—that is to say, no one will be aware that he has the custody of a secret unless either he or the patient has given an intimation to that effect. But it may become known to third parties that the medical man is acquainted with matters which are relevant to impending legal proceedings, and if his evidence is then sought the principles which should guide him in refusing or giving it will have to be considered. As our quotation from Dr. CHEEVER'S paper implies, such proceedings are of two kinds, criminal and civil. Generally speaking, it is the duty of every citizen to assist in securing the conviction of an offender against the criminal law and the medical man must consider his duty as a citizen. He must also reflect whether by standing aside he will render himself the accomplice of the criminal. On the other hand, he is not called upon to play the detective, although to a certain extent he must be guided by circumstances even in this. For example, a practitioner in a rough district may find himself dressing injuries which, coupled with knowledge already acquired by him, leave little doubt in his mind that the patient is a person sought for by the police. It is easy to say that such a patient's secret should repose safely in the medical man's custody where the alleged crime has been of a petty nature, such as drunkenness or poaching or even a felony of minor gravity, but is the medical man to keep silence where he is strongly of the opinion that his patient has committed a murder? For such occasions it is not easy to do more than to lay down the principle that the secret of the patient should be jealously guarded in the patient's interest by his medical adviser, so long as to do so is compatible with the discharge of duty towards the community. It will be remembered that where a medical man attends a woman who, in his opinion, has been the victim of an illegal operation he is not blamed because he assists in procuring the detection and punishment of the crime, although to do so necessarily includes the denunciation of his patient as an accomplice in it. Were he not to do so he would risk being

suspected of personal complicity, a danger to which no medical man could reasonably be expected to expose himself.

Among civil cases there are many, partaking of the nature of criminal trials in that charges of fraud are involved, in relation to which the medical man may well be guided by the same principles which regulate his conduct where a prisoner's guilt is the subject of inquiry. He is to respect his patient's secret so far as he can do so consistently with his duty as a citizen. He is not a detective but he is not called upon to risk being accused of complicity in fraud. Where there is no inquiry into anything of a criminal nature the medical man will find less in the circumstances of the case to modify and to direct his discretion and conduct. The secret intrusted to him must, however, still be regarded as the patient's secret to be jealously kept in the patient's interest. This will be found a principle of more general application than the rule suggested by Dr. CHEEVER that the confidence should only be revealed with the patient's consent. In many cases the patient is dead and not only is no consent to the revelation obtainable but none can be implied from the nature of the matter imparted. And yet it is conceivable that the medical practitioner may hold it not only permissible but his duty to break a silence which would discredit one whose good name is in his keeping. An issue may be raised, for example, in which a woman's reputation for chastity may be involved, or the question may be whether a man at a time when he sought medical advice was suffering from a venereal disease. A variety of similar instances can be imagined in which the medical man might be asked to defend or to attack a reputation. If we lay it down, therefore, as a general principle that the patient's secret should be rigorously kept in the patient's interest, laying stress upon the point that it is the patient's interest that must primarily be regarded, we can then leave particular circumstances to modify individual cases. Such circumstances would include the amount of injury likely to be suffered by strangers or by the medical man through the strict maintenance of the secret, and their effect must be left to the consideration of the person most concerned. The law is administered by men who themselves may have secrets of their own lives intrusted to their medical advisers, and judges will not be likely to press too hardly where the refusal to speak is made upon reasonable and honourable grounds.

National Physical Deterioration.

ON Saturday, Sept. 5th, it was officially announced that the Lord President of the Council had appointed a committee to make a preliminary inquiry into the alleged physical deterioration of certain classes of the community. The committee consists of the following seven gentlemen who are all well known as experts in their several departments:—Mr. ALMERIC FITZROY, C.V.O., clerk to the Privy Council; Colonel G. M. FOX, C.B., formerly head of the Army Gymnastic School; Mr. J. G. LEGGE, Chief Inspector of Reformatory and Industrial Schools; Mr. H. M. LINDSELL, Principal Assistant Secretary to the Board of Education; Colonel GEORGE T. ONSLOW, C.B., Inspector of Marine Recruiting; Mr. JOHN STRUTHERS, C.B., Assistant Secretary to the Scotch Education Department; and Dr. J. F. W. TATHAM, of the General Register Office, Somerset House. We are informed that the Government has decided to appoint this committee in fulfilment of a promise by the Duke of DEVONSHIRE last July in the course of a debate in the House of Lords, which promise was to the effect that the inquiry asked for at the time should be made if necessary, and that as a preliminary step the opinion of the medical profession should be taken as to the necessity for such an inquiry and as to its scope. Accordingly the opinion of the Royal College of Physicians of London and of the Royal College of Surgeons of England was asked for and obtained. The replies of the Colleges must be regarded as confidential, but it is clear from the appointment of the commission that both corporations considered that an expert inquiry into a most important subject might well be made.

The question of the alleged physical deterioration of the masses has been for some time before the public. It was much brought into prominence by an article in the January number of the *Contemporary Review* entitled "National Health: a Soldier's Study," from the pen of Sir FREDERICK MAURICE. In our editorial remarks in THE LANCET of Jan. 31st, we reviewed at considerable length the article referred to and on several occasions since then we have reverted to the subject. The acute stage of controversy was not, however, reached until Sir WILLIAM TAYLOR, the Director-General of the Army Medical Department, published his memorable report on the physical degeneration of the recruits presenting themselves for admission into the army. Since the issue of that report as a Parliamentary paper the daily press has been flooded with vague statements as to the deterioration of the physique of the labouring classes, while the usual crop of more or less silly and impracticable suggestions for dealing with the evil, the actual existence of which is, of course, accepted without question, has followed. In our own remarks from time to time concerning this important question we have been careful to make it clear that, whilst we raise no objection to the appointment of the commission asked for by Sir WILLIAM TAYLOR (although we fail to see what practical results are likely to be attained), we cannot accept the evidence which has been hitherto advanced as *proving* any general deterioration in the national physique. It remains to be seen what course the committee now appointed will think it best to pursue. It will presumably be afforded the fullest facilities for investigating and probing to the bottom the whole system of recruiting for the army, and, if we mistake not, this is a part of the War Office machinery which will be found to be in need of amendment. The inquiry cannot be otherwise than a prolonged and intricate one, as it will certainly prove a most important one. For ourselves we are content to await the result of the deliberations of the committee with patience and with confidence. We hope that the public will be persuaded to adopt a similar attitude, and will not take it for granted, upon ignorant or irresponsible statements, that the vitality of their countrymen is hopelessly lowered.

Annotations.

"Ne quid nimis."

THE ETIOLOGY OF SLEEPING SICKNESS.

THE etiology of sleeping sickness or negro lethargy has for some time attracted considerable attention. The endemic area of the disease is strictly confined to that part of western equatorial Africa which lies between and includes the valleys of the Senegal on the north and of the Congo on the south, and this peculiar geographical distribution naturally suggested a local cause. The malady has never been known to affect anyone who has not at one time or another been resident within this area. The fact, however, that the disease may develop some years after the endemic area has been quitted suggests that the cause is of such a nature that it may be carried away from that area and remain latent as regards its disease-producing qualities for a considerable period. Sir Patrick Manson has shown that filaria perstans, so far as is known, is limited in geographical distribution to western equatorial Africa—that is to say, it can be acquired there only; and he has also demonstrated that the parasite may continue in active life for many years after its human host has left the country in which alone it could have gained entrance to his system. He suggested, therefore, that filaria perstans might be in some way responsible for sleeping sickness, and supported his contention by the statement that he had found the nematode in the blood of a considerable number of cases of the disease. At the same time he admitted that there were many difficulties in the way of establishing this hypothesis. A commission was sent out to Uganda by the Royal Society in May, 1902, and one of its members, Dr. Aldo Castellani, reported that, when examining a specimen of cerebro-spinal fluid taken by lumbar puncture during life from a well-marked case of sleeping sickness, he found a living trypanosoma.[1] He made further investigations and found the organism in 70 per cent. of the cases examined. Combining this result with his previous experiences, he suggested as a working hypothesis that sleeping sickness is due to the species of trypanosoma which he had demonstrated, and that, at least in the last stages, there is a concomitant streptococcus infection which plays a certain part in the course of the disease. Another commission was then despatched consisting of Lieutenant-Colonel David Bruce, F.R.S., R.A.M.C., and Dr. David N. Nabarro. They arrived in Entebbe, Uganda, on March 16th of this year and a "progress report" on sleeping sickness in Uganda, dated from Entebbe, May 29th, has now reached us. From this we learn that the method of examination was the one adopted by Dr. Castellani. Ten cubic centimetres of cerebro-spinal fluid were taken by lumbar puncture; the fluid was centrifuged and the whole of it was subsequently poured away except the little which clung to the bottom and sides of the tube. The sediment was stirred up in this and examined under the microscope. The trypanosomes were never very numerous. In some cases only one was found after looking through several slides; in others two or three might be seen in one field. The organisms were found in every one of 40 cases examined, the patients being in all stages of the disease. It was further shown that they were present in the cerebro spinal fluid of cases occurring in other districts than Uganda. The next question the commissioners set themselves to answer was, Does the cerebro-spinal fluid of the general population contain trypanosomes? This was conclusively answered in the negative. It was also demonstrated that the parasites were present in the blood of all the patients suffering from the disease. In this connexion an interesting point arose. On the west coast of Africa during the past two years trypanosomes have been found in the blood of several persons not suffering from sleeping sickness; they have not been confined to the blood of natives but at least three white people have been affected. It would seem, therefore, either that the trypanosomes found in sleeping sickness and those found in "trypanosoma fever" belong to different species and give rise to different diseases, or that, being identical, when they are confined to the blood they give rise to slight feverish symptoms, whereas if they gain entrance to the cerebro-spinal fluid they cause sleeping sickness. The commissioners consider that this question cannot be definitely answered at present but hope that a solution will eventually be found. The peculiar geographical distribution of sleeping sickness has already been alluded to and the question naturally arises, Does this distribution coincide with the distribution of any biting insect? Inquiries have been instituted to ascertain whether any species of tsetse fly is peculiar to the affected districts, but sufficient time has not yet elapsed to give a reliable answer, though the information already received tends to the affirmative. Experiments are being made in order to ascertain whether the Uganda tsetse fly can carry the trypanosoma from animal to animal; one of these experiments has already proved successful. The etiological chain, therefore, appears practically complete, but before it can be accepted in its entirety a further report from the commissioners must be awaited. In conclusion, we would refer to one other matter which is mentioned in this "progress report" and which to our minds is of considerable importance. Sleeping sickness is extremely prevalent in Uganda and has caused the deaths of many thousands of the natives. The flies which conveyed the disease to a monkey were caught in the vicinity of the hut-tax labourers' camp. These men to the number of thousands go to Entebbe and work for the Government for one month in lieu of paying hut-tax. They live in rudely built grass huts near the shores of the lake about a mile from Entebbe along the Kampala road. The Prime Minister of Uganda informed the commissioners that he considered the hut-tax system as the chief cause of the spread of sleeping sickness all over the land. This suggestion is well worthy of investigation. As the natives go to the infected district from various parts of the country and are thus liable to be bitten by the tsetse flies it is not at all improbable that they carry the germ of the disease away with them to other districts. We shall await the publication of a further report from the commissioners with interest. They have undoubtedly already supplied much valuable and suggestive information as to the etiology of the disease.

[1] THE LANCET, June 20th, 1903, p. 1735.

NEW ROMAN OCULIST'S SEALS.

WE discussed last week at some length the four-lined inscription upon a new Roman oculist's seal but omitted to say anything about "diapsoricum," the second line upon the seal. "Diapsoricum" is probably also the base of a collyrium termed "psoricum." The longer word occurs upon more than a score of these seals, the shorter one upon two. Classical medical authors do not help our research much in endeavouring to ascertain what "psoricum" was. Formulæ for it are preserved by Galen, Celsus, and others, but they differ in the ingredients forming the mixture. When a remedy commences with the syllable "dia," it generally means that it was the chief base of the collyrium. In addition to a formula for "psoricum" Galen and Celsus, in describing other compound collyria, state that they contained psoricum, but to no substance do they give the title of "diapsoricum" and thus so far the classics fail to tell us absolutely what "diapsoricum" was. Strange to say, Marcellus Empiricus[1] does give us a diapsoricum

[1] De Medicam., vol. viii., p. 69.

collyrium but it does not contain psoricum, but white pepper, Sicilian saffron, myrrh, amidon, opium, and Judean balm; perhaps he extended this recipe as a substitute for diapsoricum. Capitaine Esperandieu in his essays upon oculist seals has fully discussed the question of psoricum, concluding that it consisted of cupric oxide and was especially used as a remedy for a condition termed "scabrites oculorum." It is also recommended for "claritas" (clearing the vision) and for defective vision. It will be noted that the difficulties of the subject are not diminished by the Rugles seal, because it places diapsoricum among the various delacrimatoria which appear to have possessed a double virtue, in some cases being used to provoke tears, and in others to stanch them, these latter being cases of epiphora or lacrimatio. As to whether, on the Rugles seal, diapsoricum was to produce, or to diminish, lacrimatio, we know not. It is the first time that it has been found suggested for such purpose instead of the usually recommended myrrh or balm.

THE PROGRESS OF LUNACY IN ENGLAND AND WALES.

IN the fifty-seventh report of the Commissioners in Lunacy it is stated that there were in England and Wales on Jan. 1st, 1903, 113,964 notified lunatics, being 3251 in excess of the number on the same day in 1902. This increase for 1902 contrasts with one of 2769 for 1901 and 1333 for 1900. The average annual increase in the number of lunatics under official cognisance for the five years ending Dec. 31st, 1902, was 2398. Thus the increase in the year 1902 exceeded the annual average increase in the preceding five years by 853. The last returns show an increase in the county and borough asylums of 3749 patients over the number for Jan. 1st, 1902, in registered hospitals of 27, in Broadmoor Asylum of 73, in the metropolitan district asylums of 62, and an increase of 22 patients in "single" care. On the other hand, the returns show a diminution of 291 in those detained in the metropolitan licensed houses, of 177 in the provincial licensed houses, of 24 in naval and military hospitals, of 140 in ordinary workhouses, and of 50 in the number of outdoor paupers. The pauper patients (47,102 males and 56,692 females) have increased in the county and borough asylums by 3628, in registered hospitals by 3, and in the metropolitan district asylums by 62; but against these must be set a decrease of 388 in metropolitan and provincial licensed houses, 140 in ordinary workhouses, and of 50 among outdoor paupers. The decrease in the number of these patients in licensed houses was mainly due to the opening of the London County Asylum at Horton and the transfer to it of patients from those houses. As regards the ratio of the insane to the population the Commissioners point out that the aggregate of lunatics under official cognisance on Jan. 1st, 1903, gives a ratio of one to every 293 persons of the general population of England and Wales. The rate of increase of the insane in proportion to the general population is shown in Table II. of the report. Thus in 1879 the ratio of lunatics to the general population was 1 to 383, in 1889 it was 1 to 337, and in 1899 it was 1 to 303. The proportion has continued to increase steadily ever since and it now amounts to 1 in 293. Excluding from consideration the idiot establishments, which show but little variation in admissions, recoveries, and death-rates, it is found that in all other institutions the admissions during the past decade have risen from 17,823 in the year 1893 to 22,851 in the year 1902. The total number of patients discharged as "recovered" were 10·2 per cent. of the average number resident in 1893 and 9·03 per cent. in 1902. The deaths, which in 1893 amounted to 6609, or 9·86 per cent. of the average number resident, rose to 9266 in 1902, or 10·55 per cent. of the average number resident. At any period and in any year of the series the recovery rate has been higher among females than among male patients, while *per contra* the death-rate of females has been invariably higher than that of males. The etiological factors in the production of mental disorder are often complex and difficult to classify and the figures given have only a relative value. "Previous attacks" of insanity were stated to have occurred in 16·2 per cent. of males and 23·1 per cent. of females admitted during the five years 1897 to 1901, whilst "heredity" was ascertained in 18·8 per cent. of males and 24·6 per cent. of females. Alcoholic intemperance was assigned as the cause of insanity in 23·1 per cent. of males and 9·6 per cent. of females. There are about 12 per cent. of the inmates of asylums suffering from epilepsy, this being the average met with in the visits of the Commissioners. The proportion of male epileptics exceeds that of females to a marked extent—about 30 per cent. The male general paralytics admitted, however, outnumber the females in the proportion of about one to four or five. Thus during the five years 1897 to 1901 the average annual number of general paralytics admitted to all institutions was 1307, comprising 1069 males and 238 females. Of the total number of persons admitted to institutions for the insane "nearly 25 per cent. are," says the report, "known to be suicidally disposed. ..... This large proportion of suicidal patients contrasts with the comparatively small number of deaths from suicide of patients under care, and the contrast is a striking commentary upon the necessity of supervision and the admirable manner in which it is universally carried out." The weighty statistics collected by the Commissioners serve to illustrate several points of importance. The falling recovery rate during the past quarter of a century, the slightly enhanced death-rate, and the steady growth and increase of the insane at a rate faster than the growth of the general population are matters which must engage the thoughtful attention of the medical profession, of legislators, and of public authorities.

THE SCHOOL BOARD FOR LONDON AND LECTURES ON HEALTH.

WE have from time to time expressed our views that the School Board for London was in the habit of teaching a great many more subjects than could reasonably be included under the heading of elementary education, but for what must be among the last official acts of the Board we have nothing but praise. The evening continuation schools committee has sanctioned the opening by Dr. R. J. Collie of 20 experimental classes on health. Dr. Collie has been for some years medical superintendent of the ambulance and home-nursing classes of the Board and he has been struck with the importance of teaching the poorer section of the population such things as the value of fresh air, the importance of a cheap and nutritious diet, and the gain of living in "physiological righteousness." The classes are to be held in different districts of London and the lecturers will be recognised medical men. From the syllabus of the lectures which Dr. Collie has forwarded to us we see with pleasure that the lectures are to be made as practical as possible and are to be illustrated by experiments. The subjects will be the hygiene of the house, air and ventilation, clothing, the prevention of consumption, exercise of personal hygiene, food and water, the prevention of the spread of infection, the care of infancy, ill-health and dress in women, and cooking. No one who has not worked among the poor can form any idea of the excessive ignorance which exists among them regarding the feeding of infants and children, the cooking of food, and the necessity for ventilation. The wife of the average working man has no idea of cooking food as a rule. She simply "does it." She does not

know how to prevent the spread of infectious disease and in such a common complaint as measles she considers that her child is perfectly able to go out as soon as the rash has disappeared, a proceeding which of course in many cases leads to pneumonia. We are quite aware that it is exceedingly difficult for those living in the heart of a great city to obtain adequate house room for facilities for practising hygiene, but even those who live under the worst possible conditions could do something more than they do in practice to live a less unhealthy life than is the custom. We therefore hope that Dr. Collie's lectures will meet with practical success.

AN ADAMLESS EDEN.

THE increasing excess of male over female deaths in Chicago is becoming a matter of some importance. The bulletin of the health department for the week ended August 22nd, which has just been issued by Dr. Arthur R. Reynolds, commissioner of health of the city, shows that there were 483 deaths reported, which is exactly the same number as for the previous week. Of these, 291 were males and 192 were females, an excess of 50 per cent. of male deaths. "In 1901 this excess was 23·4 per cent.; in 1902 it was 29·5 per cent.; during the first six months this year it was 37·4 per cent., and now 50 per cent. more males than females are dying. In another 20 years—*Place aux dames!*" These are Dr. Reynolds's words and undoubtedly they will seem to be justified if the present position is maintained or aggravated in subsequent bills of mortality.

THE DISTRIBUTION OF PLAGUE.

THE report of the medical officer of health of Cape Colony for the week ending August 15th states that no case of plague was discovered throughout the colony during the week in question. Dead rats, however, were found at East London and at Queenstown. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Sept. 4th states that for the week ending Sept. 3rd there were 28 cases of bubonic plague and 25 deaths from the disease. With regard to Australia, our correspondent states that no cases of plague have been reported from any of the States during July. The Brisbane Board of Health has declared the ports of Brisbane and Fremantle free from plague from August 8th. In Sydney occasional rats caught are found to be plague-infected and the work of rat destruction is conducted vigorously. Our correspondent in Constantinople reports that limited outbreaks of plague have occurred near the Turco-Persian frontier and in the Lebanon.

THE INTERNATIONAL CONGRESS OF OPHTHALMOLOGY.

THE International Congress of Ophthalmology, which is held every five years, is to meet in 1904 in Lucerne. From an official circular which we have received the authorities of the congress appear to have taken a new departure in their arrangements and to have decided upon a course of action which seems to us to be worthy of imitation at other congresses of a like nature. No papers are to be read, for, as the committee very rightly says, papers are much more easily understood by being read in the scientific journals and the multiplicity of papers which are sent in to a congress almost entirely precludes discussion. Any member, therefore, who wishes to contribute a paper is requested to send it with the admittance fee before May 1st, 1904, to Professor Mellinger of Basle. The paper must be written in one of the four official languages, English, French, German, or Italian. The papers will be printed and grouped according to their subjects and this printed report will be sent to each member with his admission card at least two weeks before the date appointed for the opening of the congress. At the meetings the authors of the papers will be requested by the president to state the conclusion of their respective papers in a few words and the discussion will then commence. Members present who are interested in the subject of the paper will, of course, have had the opportunity of reading the paper before the opening of the congress. The discussions will be printed and published at the close of the congress and possibly papers received too late to be printed before the opening of the congress will also be discussed and printed with the discussions. Only one subject will be officially discussed by the congress—namely, the Question of Indemnity as Regards the Value of an Eye Lost or Injured. Upon this matter Professor Axenfeld of Freiburg, Dr. Sulzer of Paris, and Dr. Wurdemann of Milwaukee have been requested to draw up a report. The afternoons of the congress sittings will be devoted to practical demonstrations. The congress will be held on Sept. 19th, 20th, and 21st, 1904. The president is Professor Dufour, the vice president Professor Pflüger, the secretary and treasurer Professor Mellinger, and the honorary president Professor Snellen of Utrecht, who was president of the last congress. Another honorary president is Dr. Deucher, the President of the Swiss Confederation. Further information can be obtained from the correspondents for the United Kingdom: Mr. W. H. H. Jessop, 73, Harley-street, London; Dr. George Mackay, 20, Drumsheugh-gardens, Edinburgh; and Mr. H. R. Swanzy, 23, Merrion-square, Dublin.

ON TOBACCO-ALCOHOL AMBLYOPIA.

IN recent years the pathogenesis of the toxic amblyopias in general, and particularly the alterations which are produced in the ganglion cells of the retina by the action of methyl alcohol, quinine, and filix mas have attracted much attention. Accounts of some of these researches have been from time to time published in these columns during the past two years.[1] In the *American Journal of the Medical Sciences* for August Professor G. E. de Schweinitz and Dr. D. L. Edsall, both of Philadelphia, contribute an interesting account of seven cases of toxic amblyopia which were studied with the special object of determining the nature of the toxic changes directly or indirectly set up by alcohol, tobacco, or other toxic agent. Writing in 1900, Professor Schweinitz said: "It is quite possible that nicotine, or one or more of the many principles present in tobacco smoke, liberates some toxic influence in the system which must be held accountable for the disease, which, in other words, depends upon a species of auto-intoxication." Sachs maintained that even in pure cases of tobacco amblyopia certain chemical derangements occur first in the stomach with a resulting transformation of the normal gastric acids into acids of the fatty series. These acids having combined with the nicotine and other injurious substances of tobacco, the product acted far more deleteriously than the simple tobacco derivatives (bases) themselves, constituting in themselves the toxins which produced amblyopia. In order to ascertain the presence or otherwise of such toxins in patients the urines of seven persons suffering from tobacco-alcohol amblyopia were submitted to thorough analysis for varying periods of time. The results obtained indicated that alcohol and tobacco acted not merely in a direct fashion on the retina but that they also produced gastric changes whence arise secondary toxic products, the action of which was still more deleterious. The following two cases are cited as typical ones. The first patient was a male, aged 46 years, by occupation a negative retoucher. He applied for

[1] Blindness due to Drinking Bay Rum (THE LANCET, July 13th, 1901, p. 93), and Production of Amblyopia by Alcohol (THE LANCET, March 29th, 1902, p. 911).

treatment on account of failing vision in September, 1902. He was a fairly healthy man except for some gastric disturbance and he was free from syphilis. He had been a "moderate smoker" for many years and had been accustomed to drink beer and whisky, but had not been indulging in a dissipation or debauch. In the spring of 1902 he noted blurring of vision which seriously interfered with his occupation. Ocular examination showed clear media and an oval area of pallor in each optic disc on the temporal side, most marked in the left eye. The fields of vision were of normal outline and there was a faint negative scotoma in the centre of each ocular field. He was treated for a month with strychnine and directed to discontinue tobacco and alcohol, but no improvement followed. Examination of the gastric contents after a test meal showed absence of free hydrochloric acid and the presence of a lot of tough mucus indicating gastritis. The urine showed a considerable amount of indican and more urobilin than normal. The patient was placed upon suitable diet to correct the gastritis, all medicine was discontinued, and at the end of six weeks the visual condition had returned to the normal as regards acuity and the scotomas had disappeared. The second case, that of a man aged 36 years, an inveterate smoker of great quantities of cigarettes and a free drinker, developed a more marked amblyopia. The urine showed marked excess of indican and of urobilin. Gastric disturbances similar to those in the previous case were met with. Regulation of the diet and abstinence were followed by cure in a few weeks. There was no albuminuria or glycosuria in any of the seven cases, but all exhibited urobilinuria and indicanuria, as well as gastric and hepatic disturbance of function.

PANCREATITIS IN MUMPS.

As the pancreas closely resembles in structure and function the salivary glands it might be expected that it would be involved in the metastases of mumps. However, very few observations have been recorded on the point. At the meeting of the Société Médicale des Hôpitaux of Paris on July 30th M. Simonin, an army surgeon, read notes of ten cases of pancreatitis which had occurred in 652 cases of mumps treated in the hospital of Val-de-Grâce from January, 1899, to June, 1903. The symptoms of pancreatitis appeared from the first to the twelfth day of the disease, generally from the third to the sixth, and lasted from two to seven days. Thus the inflammation of the pancreas ran a similar course to that of the salivary glands. In four cases there were also genital metastases. The principal symptom was pain between the xiphoid cartilage and umbilicus which sometimes radiated along the costal arches and even into the interscapular, dorsal, and lumbar regions. Light pressure in the pancreatic region was unbearable and deep palpation was impossible, so that the presence of a swelling could not be ascertained. Nausea or vomiting was rarely absent. Vomiting sometimes was incessant and provoked by taking the smallest quantity of liquid or by slight pressure. Sometimes like the pain it occurred in crises. Pyrexia was inconstant and was absent in four cases out of the ten. The axillary temperature generally ranged between 100·4° and 102·2° F., rising progressively for three days and falling in a similar manner. Diarrhœa occurred in half of the cases; it was not accompanied by marked abdominal pain. There was neither albuminuria nor glycosuria. In two cases epistaxis occurred at the height of the pancreatitis. The following is an outline of two of the cases. A soldier, aged 22 years, was seized on May 13th, 1901, with violent epigastric pain which radiated into the back and loins. There was nausea during the whole evening. The temperature was 99·1°. On the following day both parotid glands were swollen and painful and there were diffuse erythema of the throat, anorexia, and constipation. The epigastric pain persisted and radiated under the left false ribs. Epistaxis occurred twice. On May 17th the epigastric pain disappeared and the right epididymis became swollen. The parotid swellings still persisted. On May 20th all the symptoms disappeared. In another case a soldier, aged 21 years, had on March 25th, 1903, a slight attack of mumps on both sides with a little pyrexia. On the night of the 28th there was severe epigastric pain. On the following morning he vomited repeatedly, the temperature rose to 101·1°, and the epigastrium was very tender. On the 30th the temperature was 102·2°, the epigastric pain persisted, and there were nausea, bilious vomiting, and profuse diarrhœa. On the following day the vomiting ceased and the epigastric pain diminished. Two days later recovery was complete. In a communication to the Société Médicale des Hôpitaux of Paris on March 5th, 1897, M. Cuche stated that in an epidemic of mumps he found the pancreatic region tender in most of the cases (20 out of 26). Sometimes this symptom coexisted with redness of the throat and pyrexia and was the only glandular manifestation of the disease.

THE ORGANISATION AND ENDOWMENT OF SCIENCE.

SIR NORMAN LOCKYER in his address as President of the British Association, which we publish in this issue of THE LANCET, brings forward some very forcible arguments in support of the absolute necessity, if this country is to maintain her proud position among nations, that our scientific knowledge should be properly organised. In clear phrases, supported by equally clear figures, he shows the grave lack of university education under which this country lies when compared with our great rivals in the world of commerce—Germany and the United States—while he makes an eloquent plea for the proper endowment of scientific research by the State. Sir Norman Lockyer's words will commend themselves to all our readers, while to many of his views our most prominent thinkers have already and publicly subscribed. Is it too much to hope that something will be done? If the British Science League, the formation of which he suggests, should come into being and should find itself in a sound financial position, we believe that practical good might follow. Such a league, by persistently bringing before the nation the danger of our national apathy towards scientific work, might secure a proper recognition of modern educational systems and of the value of scientific research.

CANCER RESEARCH.

THE honorary treasurer of the Cancer Research Fund has made the gratifying statement that Mr. William Waldorf Astor, in response to the appeal made by Mr. Balfour at the first annual meeting of the fund, has forwarded a cheque for £20,000 to the Fund. The total sum required is £100,000 and Mr. Astor's contribution, together with other smaller sums, has brought the total up to £75,000, so that £25,000 still remain unsubscribed. Mr. Astor's generous gift will, we hope, induce others blessed with this world's goods to make up the deficit. The sum required is not much if divided among the population of these islands—in fact, it is only 1*d*. per head of the population of London. But scientific research does not appeal to the ordinary man, as Sir Norman Lockyer clearly points out in another column. Liverpool has set a magnificent example to other cities in the matter of endowments for medical research, and though, perhaps, the possibilities of preventive medicine appealed to the merchant princes of Liverpool primarily because of the commercial relations which malaria and kindred diseases have with foreign and colonial trade, yet their generosity is now truly altruistic. We wonder that the example is not more followed. Cancer is a disease which has no commercial

side, but which affects everyone from the highest to the lowest. Little is known of its nature and methods of "cure" are hardly more advanced than they were at the beginning of the last century. Once the cause of cancer is discovered a great step will have been taken towards the attainment of a successful treatment, and we hope that the Cancer Research Fund will not have much longer to wait for its sorely needed endowment. Mr. Astor's munificence leaves a quite inconsiderable sum for the public to supply when the interest of the public in the work is considered.

THE PAYMENT OF PUBLIC VACCINATORS AND OF VACCINATION OFFICERS.

THE President of the Local Government Board has appointed a departmental committee to inquire and to report with regard to: (1) the payments at present made under the Vaccination Order, 1898, in respect of the remuneration, costs, and expenses of public vaccinators and vaccination officers; and (2) whether any, and if so what, alterations should be made in relation to the remuneration, costs, and expenses of these officers. The members of the committee are Mr. E. H. Llewellyn, M.P. (chairman), Mr. J. Lithiby, Dr. R. Bruce Low, and Mr. W. Vallance. Mr. A. V. Symonds, of the Local Government Board, will act as secretary to the committee.

THE PREVALENCE OF SMALL-POX IN TASMANIA.

OUR Australian correspondent states that the outbreak of small-pox in Tasmania seems to be spreading. On July 29th the Tasmanian health authorities issued the following return for the week ending July 18th: total number of cases, 44; total deaths, 6; cases reported during the week, 4; deaths reported during the week, 4; and number of "contacts" isolated, 182. All the patients with the exception of 4 who were too ill to be removed have been sent to the isolation hospital. All the cases have occurred at the northern end of the island. Since July 18th fresh cases have developed. Two patients have died. The Government is becoming alarmed by the extent of the outbreak and owing to the strict quarantine regulations trade is paralysed and there are practically no passengers by boat either to or from Tasmania.

THE UNIVERSITY OF GLASGOW.

CONSIDERABLE interest is being taken at the present time in the schemes which are being adopted for university extension. The main building of the University of Glasgow was erected 30 years ago, but has now become quite inadequate for present-day purposes. About £100,000 were recently expended in the equipment of the engineering, botanical, anatomical, and surgical departments, and the University Court has further determined to erect laboratories in connexion with natural philosophy, materia medica, physiology, and public health. There is, however, very little space at the disposal of the University for this purpose and what there is consists chiefly of what is just now the students' recreation ground. This it was necessary to utilise if the architectural character of the building was to be retained. But so much feeling arose when the proposal was made that the University Court accepted other plans involving the building of two blocks within the University grounds on different sites, against the express advice of their accepted architect. The plans have passed the Dean of Guild Court and operations have actually begun, but public opinion has now been expressed so strongly upon the matter that the University Court has been compelled to call a meeting for an early date with the view of reconsidering the whole matter. What is urged now is that the students' recreation ground should be utilised for building a part of a large block which will include all the laboratories at present required and which will, when completed, add many more for future purposes. If this be done it will enhance rather than detract from the appearance of the present building. This, of course, will mean that a recreation ground will require to be found for the students elsewhere, but that is not impossible. Dr. D. C. McVail suggests a way out of the financial difficulty which will necessarily arise. He points out that the proposed increase in the students' fees will mean an increased revenue of about £3000. The first charge he would make on this would be the expense of procuring a field of about 20 acres or so in the outskirts of the town. Thereafter he proposes that a sufficient sum should be expended annually on its upkeep.

MR. MOSELEY'S EDUCATIONAL COMMISSION.

A COMMISSION of inquiry into the educational systems of the United States of America and how these systems affect the national commerce and industry, which owes its existence to the enlightened liberality of Mr. Alfred Moseley, C.M.G., will start from Southampton on Oct. 3rd. The list of the commissioners, who are some 30 in number, includes many well-known authorities on general and technical education, and it seems to us certain that their intelligent examination of all that will be put before them in the United States ought to throw much needed light upon the present educational position in Great Britain. That secondary education in England is in a poor way seems undoubted, but from the lugubrious tone of some of the critics of our educational system it might be gathered that we had already fallen from our position as a first-class power. Our board schools do not turn out a large percentage of finished men of science, but the extreme depression of the pessimists is not justifiable. We think that Mr. Moseley's open-handed and patriotic attempt to gather instructive information from the other side of the Atlantic will result in the discovery that in one direction our younger generation enjoy great opportunities, as great as any offered to the American citizen. Dr. J. Rose Bradford, F.R.S., professor-superintendent of the Brown Institute, is the medical member of the commission and his report upon the curriculum of the medical student in the various American universities will be looked for with interest. It is a gratifying fact to medical men to reflect that in one branch of technical education Great Britain does herself justice. The standard of medical education in this country is as high as it is anywhere in the world, although it does not meet with the pecuniary support either from municipalities or laymen which it finds on the continent or in the United States.

ALBUMINURIA IN DIABETES.

AMONGST the complications of diabetes mellitus the occurrence of albuminuria has not generally received the attention which it merits. Many observers, however, have maintained that the presence of this symptom in diabetes is never devoid of importance while it may sometimes be of the gravest significance. Professor Grube divided diabetic albuminuria into five varieties: (1) terminal albuminuria associated with diabetic coma; (2) cardiac albuminuria met with in connexion with myocardial weakness; (3) senile albuminuria of arterio-sclerotic origin; (4) functional albuminuria due to irritation of the kidneys by the saccharine urine; and (5) albuminuria associated with organic renal changes. This classification is complicated and confusing. A more simple but equally adequate classification is made by Dr. A. R. Elliott, professor of medicine in the Post-graduate Medical School, Chicago, writing in the *Journal of the*

American Medical Association of August 8th last. He maintains that with the exception of the rare cases of albuminuria produced by circulatory failure in patients of the asthenic type, the albuminuria of diabetes may, for general clinical purposes, be placed in one of two categories—toxic and degenerative. The toxic form is generally of acute onset, arising during the later stages of the severe forms of diabetes as the result of the irritation of the tubular epithelium producing hyaline degeneration thereof, and Dr. Elliott believes that the irritation is due to the presence of acid toxins in the blood and urine. This toxic albuminuria is an invariable precedent and accompaniment of coma and must therefore be regarded as of the gravest prognostic significance. Degenerative albuminuria occurs with frequency, according to Dr. Elliott, during the progress of the mild type of the disease and is of renal origin, being produced by a gradually developing nephritis which arises from prolonged hyperfunction and impairment of renal nutrition. The appearance of albuminuria in these circumstances, while of little immediate significance, is of the greatest eventual importance as indicating the intrusion of chronic nephritis into the already manifold clinical difficulties. These observations are of considerable interest and Dr. Elliott has done good service in publishing them.

POST-GRADUATE WORK ABROAD.

WE are often asked to help our readers with information concerning post-graduate work abroad and we commence to-day a short series of articles dealing with the facilities provided for the foreign medical man at some of the more important centres. Our article this week (see p. 781) deals with Paris and is written by Dr. A. A. Warden, whose pamphlet on the subject has already been favourably reviewed in our columns. Subsequent articles will, as a rule, be from the pens of our special correspondents.

THE sanitary committee of the Glamorganshire county council has instructed its medical officer, Dr. William Williams, to prepare handbills in both English and Welsh describing the symptoms of ankylostomiasis and how the disease may best be guarded against. A circular is also to be issued to medical men informing them that the investigation of material from suspected cases will be undertaken at the county laboratory.

THE annual dinner of the old students of St. Bartholomew's Hospital will be held on Oct. 1st in the great hall of the hospital. Mr. W. Bruce Clarke will be in the chair. The annual dinner of the old students of St. George's Hospital will be held at the Hôtel Métropole on Oct. 1st. Professor Clifford Allbutt will be in the chair.

WE regret to learn of the tragic death of Mr. T. A. Dodd of Newcastle-on-Tyne, who was killed on Tuesday last, Sept. 8th, by being thrown from his horse, which was frightened by a traction engine. Mr. Dodd was formerly assistant surgeon to the Newcastle-on-Tyne Hospital for Children and to the Royal Infirmary.

THE winter session at St. Mary's Hospital will commence on Thursday, Oct. 1st, at 3.30 P.M., when the prizes for last session will be presented by Sir William Broadbent and the introductory address will be delivered by Dr. V. Warren Low.

THE death, in the sixty-sixth year of his age, is announced of Mr. T. R. Jessop, F.R.C.S. Eng., for many years a prominent surgeon in Leeds. Mr. Jessop was the first professor of surgery in the Yorkshire College.

THE Bradshaw Lecture will be delivered before the Royal College of Physicians of London by Dr. E. F. Trevelyan on Nov. 5th, the subject being Some Observations on Tuberculosis of the Nervous System. The Harveian Oration will be delivered before the College on Oct. 19th by Dr. W. H. Allchin.

THE NEW REGULATIONS FOR THE NAVAL MEDICAL SERVICE.

WE were able to indicate in our Students' Number, published last week, that certain changes were imminent in the regulations for the Naval Medical Service that would, in our opinion, considerably improve the position of the naval medical officers. These regulations have now been published and we give them below, the clauses in italics being those under which reforming innovations come into force.

REGULATIONS AS TO MEDICAL OFFICERS,

In which are embodied the provisions of the Order in Council of 24th March, 1902, and 11th August, 1903.

PROMOTION.

1. An inspector-general of hospitals and fleets will be selected from amongst deputy inspectors-general who have in that rank—

Three years' full pay service and who have not at any time declined foreign service except for reasons which the Lords Commissioners of the Admiralty regard as good and sufficient.

2. A deputy inspector general of hospitals and fleets will be selected, for ability and merit, from amongst fleet surgeons.

3.—(*a*) Subject to the approval of the Lords Commissioners of the Admiralty, rank as fleet surgeon will be granted to staff surgeons at the expiration of eight years from the date of promotion to staff surgeon, provided they are recommended by the Medical Director-General and have not declined service except for reasons, which in the opinion of the Lords Commissioners of the Admiralty, are satisfactory.

(*b*) Special promotions from the rank of staff surgeon to that of fleet surgeon will be made, at their lordships' discretion, in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and will not exceed the rate of one in two years; the total number at any one time of fleet surgeons holding that rank by such special promotions will not exceed six.

4.—(*a*) Rank as staff surgeon will be granted, subject to their lordships' approval, to surgeons at the expiration of 12 years from the date of entry, provided they are recommended by the Medical Director-General, and have passed such examination as may be required after completion of *five* years from the date of entry in the rank of surgeon.

(*b*) Special promotions will be made, at their lordships' discretion, to the rank of staff surgeon in cases of distinguished service or conspicuous professional merit. Such promotions will be exceptional and not exceed the rate of one a year. The total number at any one time of staff surgeons holding that rank by such special promotions will not exceed eight. No officer will be so promoted unless he passes the examination prescribed for other surgeons, but in such a case the requirement of eight years' time in rank of surgeon will be dispensed with.

(*c*) When a surgeon's promotion to the rank of staff surgeon has been retarded by failure to pass the qualifying examination, he will, should he pass and be promoted, be dealt with as follows:—

He will be granted the seniority as staff surgeon he would have received had he passed in ordinary course.

He will reckon service for increase of full and half pay only from the date of appointment to full pay as staff surgeon.

If on half pay, or if placed on half pay when promoted, he will receive the lowest rate of half pay of the new rank from the date of passing the qualifying examination.

Where delay in passing the qualifying examination may be due to unavoidable circumstances, special consideration will be given.

(*d*) The seniority of surgeons on entry will be determined by the sum total of the marks they obtain at the London examination and those at the conclusion of the Haslar course and their names will then be placed in the Official Navy List. Surgeons entered without competition [1] will take seniority next after the last surgeon entered at the same time by competition.

(*e*) The examination for promotion to the rank of staff surgeon will be held by the examining board to which a naval medical officer will be attached to conduct the examination in naval hygiene. The subjects of examination will be in writing and will include medicine, surgery, pathology, general hygiene, and naval hygiene.

Earlier promotion to the rank of staff surgeon may be granted to those surgeons who, before entry, have held the post of legally qualified resident medical or surgical officer to a recognised civil hospital of not less than 100 beds for a period of not less than six months, provided their conduct and professional abilities have been favourably reported on during the time they have served in the Navy. They may be granted from six months to one year's seniority, according to the time they have held their civil appointments, but in no case will more than one year's seniority be granted. The eligibility of the appointment to count for time will be decided by the Medical Director-General.

This only applies to officers who enter by competition.

(f) A candidate who at the time of passing the examination for entry into the medical branch of the Royal Navy holds, or is about to hold, an appointment as resident medical or surgical officer in a recognised civil hospital may be allowed to serve in such civil appointment provided that the period of such service after the date of entry

[1] See Clause 8 of the Regulations for Entry.

into the Royal Navy does not exceed one year. Pay from naval funds will be withheld from officers while thus serving, but the time concerned will reckon for increase of full and half pay while on the active list and retired pay or gratuity on retirement or withdrawal, except that no officer will be allowed to retire on a gratuity until he has completed four years' service exclusive of the time spent as resident medical or surgical officer. The eligibility of this appointment will also be decided by the Medical Director-General.

RELATIVE RANK.

5. Is accorded as laid down in the King's Regulations and Admiralty Instructions.

6. *Full Pay and Allowances.*

Rank.	Daily.	Yearly.
Surgeon:	£ s. d.	£ s. d.
On entry	0 14 0	256 10 0
After 4 years' full-pay service (including service allowed by paragraph 4 (f))	0 17 0	310 5 0
After 8 years' full-pay service (including service allowed by paragraph 4 (f))	1 0 0	365 0 0
Staff surgeon:		
On promotion	1 4 0	438 0 0
After 4 years' full-pay service in rank ...	1 7 0	492 15 0
Fleet surgeon:		
On promotion	1 10 0	547 10 0
After 4 years' full-pay service in rank ...	1 13 0	602 5 0
,, 8 ,, ,, ,, ...	1 16 0	657 0 0
Deputy inspector-general...	2 2 0	766 10 0
Inspector-general	—	1,300 0 0 Consolidated.

On first appointment to the service medical officers will receive full pay from date of appointment, but subject to the provisions of Art. 1342 of the King's Regulations, 1899.

7. *The medical officers in charge of the following hospitals and sick quarters will be granted charge pay:—*

Haslar, Plymouth, Chatham, Malta, Hong-Kong, Bermuda, Jamaica, Portland, Yarmouth, Haulbowline, Cape, Gibraltar, Yokohama, Esquimalt, and Ascension.

The rate of charge pay will be as follows:—

	s.	d.	
Inspectors-general	10	0	a day.
Deputy inspectors-general	7	6	,,
Fleet surgeons	5	0	,,
Staff surgeons	2	6	,,

8. The hospital allowances for naval medical officers at home and abroad, in lieu of provisions, for themselves and servants, and for fuel and lights, are as follows:—

—	At home.	Abroad.
	£	£
Deputy inspectors-general	67	112
Fleet surgeons and staff surgeons	53	112
Surgeons	39	108

9. An allowance of 5s. a day in addition to full pay is granted to the senior medical officer, being a fleet or staff surgeon of a flagship bearing the flag of a commander-in-chief on a foreign station or of the senior officer commanding the Channel Squadron, and an allowance of 2s. 6d. a day to the senior medical officer, being a fleet or staff surgeon of the ship of a commodore or of a senior officer commanding a foreign station. An allowance of 2s. 6d. a day may also be granted to the senior medical officer, being a fleet or staff surgeon, in ships carrying the flags of flag officers or the broad pendants of commodores not commanding stations. The conditions governing the payment of these allowances are laid down in Art. 1432 of the King's Regulations.

10. The following charge allowances may be granted to medical officers in charge of hospital ships:—

If above the rank of fleet surgeon	5s. 0d. a day.
If of the rank of fleet surgeon or junior	3s. 6d. ,,

11. The fleet and staff surgeons serving at the Admiralty and the Marine Rendezvous will be granted the hospital allowance of £53 a year in addition to the usual lodging money.

Medical officers conducting the course of instruction at Haslar Hospital will receive the following allowances:—

Two senior officers employed upon this duty ...	£150 a year each.
The junior officer assisting	50 a year.
The junior officer instructing the sick berth staff	50 ,,
The junior officer instructing the sick berth staff at Plymouth	*50* ,,

Medical officers employed elsewhere than at a hospital and not victualled in kind receive an allowance of 1s. 6d. a day in lieu of provisions, fuel, and lights, under the conditions laid down in the King's Regulations.

12. The travelling allowances, extra pay, lodging money, and compensation for losses are fixed for naval medical officers according to their relative rank in the service.

13. *Half Pay.*

Rank.	Daily.	Yearly.
Surgeon:	£ s. d.	£ s. d.
Under 2 years' full-pay service (including service allowed by paragraph 4 (f))	0 6 0	109 10 0
After 2 ,, ,,	0 7 0	127 15 0
,, 4 ,, ,,	0 8 0	146 0 0
,, 6 ,, ,,	0 9 0	164 5 0
,, 8 ,, ,,	0 10 0	182 10 0
,, 10 ,, ,,	0 11 0	200 15 0
Staff surgeon:		
On promotion	0 12 0	219 0 0
After 2 years' full-pay service in rank	0 13 0	237 5 0
,, 4 ,, ,, ,, ,, ...	0 14 0	255 10 0
,, 6 ,, ,, ,, ,, ...	0 15 0	273 15 0
Fleet surgeon:		
On promotion	0 17 0	310 5 0
After 2 years' full pay service in rank	0 18 0	328 10 0
,, 4 ,, ,, ,, ,, ...	0 19 0	346 15 0
,, 6 ,, ,, ,, ,, ...	1 0 0	365 0 0
Deputy inspector-general:		
On promotion	1 5 0	456 5 0
After 2 years' full pay service in rank	1 7 0	492 15 0
,, 4 ,, ,, ,, ,, ...	1 9 0	529 5 0
Inspector-general	1 18 0	693 10 0

Retirement.

14. Compulsory retirement will be as follows:—

Inspector and Deputy Inspector-General of Hospitals and Fleets.	At the age of 60, or at any age, if he has not served for 5 years. *Except that if in any particular case the Lords Commissioners of the Admiralty may consider that the interests of the public service will be materially advanced by the further retention of an inspector-general of hospitals and fleets on the active list, the age for the retirement of such Inspector-General may be extended to 62.
Fleet Surgeon, Staff Surgeon, and Surgeon.	At the age of 55, or at any age, if he has not served for 5 years.

To be retired irrespective of age if found physically unfit for service.

* Order in Council, May 17th, 1890.

15. *Voluntary retirement and withdrawal will be allowed as follows:—*

(a) Every officer will have the option, subject to their lordships' approval, of retiring after 20 years' full-pay service on the scale of retired pay provided in paragraph 16, or with a gratuity on the scale provided in that paragraph if not eligible for retired pay.

(b) At the expiration of 5, 8, 12, or 16 years' full-pay service, every officer will be permitted, subject to their lordships' approval, to withdraw from the Naval Service, receiving a gratuity on the scale laid down in paragraph 16.

NOTE.—*The four years' service is exclusive of time served as resident officer in a civil hospital, see paragraph 4 (f).*

The name of an officer so withdrawing will be removed from the lists of the Navy, with which all connexion will then be severed, except in the case of officers who withdraw after four years who are liable to serve in the reserve.

Should an officer leave the service after four years with a gratuity of £500 he will be required to join the reserve of naval medical officers for a period not exceeding eight years. During this period his name will appear in the Navy List, he will be allowed to wear naval uniform under the usual regulations applying to officers on the retired and reserved lists, and he may place R.N. after his name. He may choose his service in the reserve as follows:—

(1) He may simply enter the reserve with power to give six months' notice of his intention to resign his position, the total period of membership, however, not to exceed eight years.

(2) He may bind himself to remain in the reserve for four years, receiving a retaining fee of £25 per annum, and at the expiration of this time he may again bind himself to serve for another four years, receiving the same retaining fee.

(3) He may enter the reserve for the first four years as in paragraph 2, and then by renouncing his retaining fee volunteer to continue membership for another four years as in paragraph 1.

Officers of the reserve will be liable to serve in the Royal Navy in time of war or emergency. When called up for such service after the expiration of any period unemployed they will immediately receive the rate of pay to which they would have been entitled after four years' service—viz., 17s. a day.

(c) Voluntary retirement and withdrawal at the discretion of their lordships will be allowed, as a rule, only when an officer is unemployed or serving at home. Under special circumstances, however, it may be permitted in the case of an officer serving abroad, provided he is prepared to pay his successor's passage to relieve him if necessary.

In order that arrangements may, as far as possible, be made for the relief of officers who may wish to withdraw on a gratuity it is desirable that six months' notice of their wish should be forwarded for the consideration of their lordships.

(d) Applications from officers to retire or withdraw, or resign their

commissions, will receive every consideration, but no officer will, as a rule, be permitted to resign under three years from the date of entry.

(e) The Admiralty reserve to themselves power to remove any officer from the list for misconduct.

16. Gratuities and retired pay will be awarded on retirement and withdrawal on the undermentioned scale:—

Rank.	Gratuities.	Daily.	Yearly.
	£ s. d.	£ s. d.	£ s. d.
Surgeon and staff surgeon—			
After 4 years' full-pay service	*500 0 0*	—	—
,, 8* ,, ,, ,,	1000 0 0	—	—
,, 12* ,, ,, ,,	1500 0 0	— *	—
,, 16* ,, ,, ,,	2250 0 0	—	—
Fleet surgeon—			
After 20 years' service (including proportion of half-pay time)	—	†1 0 0	365 0 0
After 24 years' service (including proportion of half-pay time)	—	†1 2 6	410 12 6
After 27 years' service (including proportion of half-pay time)	—	†1 5 0	456 5 0
After 30 years' service (including proportion of half-pay time) or on compulsory retirement at the age of 55	—	†1 10 0	547 10 0
Deputy inspector-general ...	—	1 15 0	638 15 0
Inspector-general	—	2 0 0	730 0 0

* Including service allowed by paragraph 4 (*f*).

† To obtain this rate an officer must hold the commission of fleet surgeon.

17. An officer retired with less than 20 years' service on account of disability, contracted in and attributable to the service, will receive the half pay of his rank, or, with the consent of their lordships, a gratuity on the scales given in paragraphs 16 and 18(*b*), but such officer will not be entitled to receive any special compensation for the disability in addition to the gratuity as above.

18. An officer retired with less than 20 years' service on account of disability, contracted in but not attributable to the service, will receive—

(*a*) If he has over eight years' full-pay service, either a gratuity on the scale given in paragraph 16, or half pay, according as their lordships think fit;

(*b*) If he has less than eight years' full-pay service, such gratuity as their lordships think fit, not exceeding the rate of £125 for each year of full-pay service.

19. Under circumstances other than those specified in paragraphs 17 and 18, and other than misconduct, neglect of duty, &c., an officer retired with less than 20 years' service will not be allowed half pay or retired pay, but will receive a gratuity on the scale laid down in paragraph 16, if he has eight years' full-pay service, and on that provided in paragraph 18(*b*) should his full-pay service not amount to eight years.

20. The power vested in their lordships of granting reduced rates of half pay and retired pay in cases of misconduct is extended to the award of gratuities on retirement, and the gratuity awarded will be reduced to such an amount as is thought fit.

21. An officer retiring after 20 years' full-pay service will be eligible, if recommended by the Medical Director-General for distinguished or meritorious service, to receive a step of honorary rank, such step to be awarded at their lordships' discretion, and not to confer any claim to increase of retired pay or of widow's pension.

22. All retired officers will be liable, till the age of 55, to serve in time of declared national emergency, in a rank not lower than that held on retirement.

This liability will not exist in cases of withdrawal on the conditions specified in paragraph 18 (*b*), *except as indicated in that paragraph as regards officers who withdraw after four years on a gratuity of £500.*

23. Retired officers will receive special consideration as regards appointments on shore connected with the Admiralty, now filled by civilians.

WIDOW'S PENSION.

24. When an officer retires, or withdraws, on a gratuity, his widow and children will have no claim to pension or compassionate allowance.

Officers serving in the reserve who during re-employment are injured on duty, or lose their lives from causes attributable to the service, come under the same regulations as regards compensation for themselves, or pensions and compassionate allowances for their widows and children, as officers of the same rank on the permanent active list.

MISCELLANEOUS.

25. A special cabin will be appropriated to the fleet or staff surgeon, or surgeon in charge of the medical duties in each ship.

26. Special regulations have been made as regards the mess expenses of medical officers appointed to the several divisions of Royal Marines for limited periods.

27. Every medical officer will be required to undergo a post-graduate course of three months' duration at a metropolitan hospital once in every eight years (should the exigencies of the service permit), and this as far as possible during his surgeon's, staff surgeon's and fleet surgeon's period of service. While carrying out this course the medical officer will be borne on a ship's books for full pay and will be granted lodging and provision allowances, and travelling expenses as for service under the regulations to and from his home or port; the fees for each course (not exceeding £25) will be paid by the Admiralty on the production of vouchers at the end of the course. The medical officer will be required to produce separate certificates of efficient attendance in the following:—

I. The medical and surgical practice of the hospital,
II. A course of operative surgery on the dead body;
III. A course of bacteriology;
IV. A course of ophthalmic surgery, particular attention being paid to the diagnosis of errors of refraction;
V. A practical course of skiagraphy.

The new regulations for the naval medical officers are preceded by the regulations for the entry of candidates for commissions in the medical department of the Navy, but these regulations are unchanged.

Looking Back.

FROM

THE LANCET, *SATURDAY*, SEPT. 10, 1825.

REVIEWS.

Manuale Medicum, or a Medical Pocket Book, for the use of Students. Adapted to the last edition of the Pharmacopœia Londinensis. By H. L. SANDERS, Surgeon.

I PETE unguentum puer, *chocolatam, sprattos, limonadam, soyamque*,[1] and convince the public that you have not neglected your "medical latin," that opprobrium of our art, at which the shafts of satire have so oft been levelled. Henceforth let the "unlearned laugh" as may seem them fit, their sneers cannot reach us; we are fortified at this point with ramparts stronger than cohorns, and protected from the missiles of the vulgar by a stream of elegant words, as wide and deep as the Oronoko, defying alike the destroying hand of time and the *radical* reformers. "Epitaphs," says Johnson, "should be written in Latin, for being a *dead* language it will always *lire;*" and so it seems should prescriptions, if they be meant to outlive the patients for whom they are made. To instruct young gentlemen to prescribe with *elegance* in the Latin language is the laudable intention of our author, to accomplish which, he has set down, under various heads, such words as "are *not* to be met with in Latin authors of the *classic* description;" in short, his work is a sort of "dictionary of the fancy," devoted to the subject of dog latin, embracing the names of many things, and the uses and doses of some others (the latter, apparently, extracted from Dr. T. YOUNG'S Medical Literature); there is no lack of prescriptions, which are arranged under fourteen heads, and the volume is concluded by a sort of practical nosology, written in not very elegant or correct Latin.

THE REPORT OF THE METROPOLITAN ASYLUMS BOARD FOR THE YEAR 1902.

FIRST NOTICE.

THE annual report of the Metropolitan Asylums Board has recently been issued. It consists of one volume of 365 pages and is clearly printed, cheaply but efficiently bound, and contains a sufficient index. The report itself, which occupies ten pages, is signed only by the chairman (Sir R. M. Hensley) and the clerk to the Board, and gives a brief summary of the chief features presented in the body of the volume and serves as an introduction to the sectional reports which follow.

The work which is administered by the Metropolitan Asylums Board includes primarily the care of the insane, the training of feeble-minded children, and the charge of those who suffer from certain infectious diseases. The most important branch of its duties is to provide hospital accommodation for cases of scarlet fever and of diphtheria, and in regard to the treatment of these disorders two unsatisfactory features have obtruded themselves prominently upon the notice of the Board. In the first place, it became evident that patients recovering from scarlet fever had a

[1] *Chocolata*, chocolate; *sprattus*, a sprat; *limonada*, lemonade; *soya*, soy, &c. &c.—Sanders. Out upon such trash!

great liability to contract diphtheria. The second unsatisfactory feature was that patients who had been treated for these diseases very frequently became the means of communicating them to those with whom they came into contact after their discharge from the hospital.

In regard to the first of these questions, it was desirable "to discover whether or not diphtheria followed scarlatina by infection or *vice versâ* (which was thought quite possible seeing that both the diseases are treated in each of the fever hospitals, though of course in different parts)." The Board, therefore, in order to elucidate this problem, resolved to set apart one hospital for the treatment of scarlet fever only and another for cases of diphtheria only. This experiment was tried for a period of 18 months and was, we are told, done with all the thoroughness possible. The conclusion which was arrived at was that "the limitation imposed upon the Board's resources by assigning one group of hospitals to scarlet fever and another to diphtheria would not result in any corresponding benefit."

The second unsatisfactory point in connexion with the administration of the infectious diseases hospitals—the spread of the disease by discharged patients—is still engaging the attention of the Board. In the meantime a special investigation by Dr. J. W. Simpson is being made and "special communications" have been received from the Royal College of Physicians of London and the Royal College of Surgeons of England. It is satisfactory to hear that one of the senior medical officers of the Board has been charged to follow up every alleged "return" case as soon as it is reported. This inquiry was begun in July, 1901, and the record of the investigations and the conclusions arrived at are anxiously awaited by the Board. It may be suggested that one of the carefully selected and well-trained inspectors of the medical department of the Local Government Board might in the meantime have been requested to make a short but thorough investigation of the administration of the hospitals and into the efficiency of the disinfecting apparatus in use. Failing this or a similar measure it cannot be said that the report signed by the chairman and secretary of the Metropolitan Asylums Board shows that they quite appreciate either the difficulties or the urgency of matter.

It is refreshing to turn from the somewhat optimistic remarks of the chairman and the secretary of the Board to the reports of the medical officers, but it is less pleasing to note that in not a few cases it appears that omissions have been made in the publication of these reports. Have these deletions been made because the Board does not wish all the facts to be known to the public, for it cannot for a moment be supposed that the medical superintendents deal with matters which are beyond their sphere of influence; each officer is responsible for his own report, and the fact that any part of it is suppressed by the Board might have serious issues. At the Eastern Hospital at Homerton, which is under the direction of Dr. E. W. Goodall, 1852 patients were under treatment during the year. Of these, 215 suffered from scarlet fever and there were seven deaths (a percentage mortality of 3·7); four cases of diphtheria occurred and four cases of "secondary" tonsillitis (none of which were fatal). The number of cases of diphtheria treated was 1232 and of these 108 patients died (a percentage mortality of 10·03), but amongst the fatal cases were 17 in which death was caused by other zymotic diseases contracted either before or after admission to the hospital (scarlet fever in nine, measles in six, and whooping-cough in two cases), and if, as seems right, allowance be made for these the percentage mortality from diphtheria was in reality 8·45. Amongst 163 cases of typhoid fever there were 18 deaths (a percentage mortality of 12·28). Three cases of small-pox were admitted before typical symptoms had manifested themselves, but there was no spread of the disease. One case of hæmorrhagic small-pox was sent to the hospital certified as typhus fever. A number of wards were kept ready for the reception of plague patients, so should there have been an outbreak of that disease there would have been no delay in regard to the isolation of the patients.

It is impossible to give even a brief summary of all the reports and it must suffice to say that at the North-Eastern Hospital at Tottenham (which is under the charge of Dr. H. E. Cuff) 3968 patients were treated; at the Western Hospital, Fulham (under Mr. R. M. Bruce), the number was 2955; at the South-Western Hospital, Stockwell (under Dr. F. F. Caiger), 2158 cases; at Fountain Hospital, Tooting-grove (under Dr. C. E. Matthews), 2377; at Grove Hospital, Tooting Graveney (under Dr. J. E. Beggs), 2198; at the South-Eastern Hospital (under Dr. F. M. Turner), 1991; and at Park Hospital, Hither green, S.E. (under Dr. R. A. Birdwood), 1816 new cases were admitted. At Brook Hospital, Shooter's-hill (under Dr. J. MacCombie), 1930 were treated and at the Northern Hospital, Winchmore-hill (under Mr. F. N. Hume), 4931.

Two very important and satisfactory facts are made evident and emphasised in the reports of the medical officers. Of these the first is the diminution of mortality in cases of scarlet fever. Thus the average mortality during the years 1894–98 was 4·2 per cent, and during the years 1899–1902 it was 2·4 per cent. The second and greater cause for congratulation (for the death incidence in zymotic diseases is liable to unexplainable variations) is the now established fact that the mortality from diphtheria has greatly lessened under the serum treatment. On this point there cannot any longer be the shadow of a doubt and there is reason to hope that this knowledge is gradually spreading. It is not equally certain that it is so fully realised that the success of the treatment depends mainly on the time of its application. This question is one of vital importance. Dr. MacCombie has shown that within his experience not a single case of death took place amongst the patients who were treated on the first day of the disease; of those first treated on the second day the mortality was, roughly speaking, about 4 per cent., whilst amongst those not treated until the third or some subsequent day the death-rate was very much higher. It may be well to give in tabular form the results of the serum treatment as shown by the records of the Brook Hospital during the last six years:—

Table of Cases of Diphtheria treated by Serum at the Brook Hospital, Shooter's-hill, during a Period of Six Years (1897–1902) showing the Rate of Mortality per 100 and its Relation to the Date of the Disease on which the Treatment commenced.

Day of the disease on which treatment commenced.	Year during which the patient was under treatment.					
	1897	1898	1899	1900	1901	1902
First...	0·0	0·0	0·0	0·0	0·0	0·0
Second	5·4	5·0	3·8	3·6	4·1	4·6
Third	11·5	14·3	12·2	6·7	11·9	10·5
Fourth	19·0	18·1	20·0	14·9	12·4	19·8
Fifth and after ...	21·0	22·5	20·4	21·2	16·6	19·4

FOREIGN UNIVERSITY INTELLIGENCE.—*Amsterdam:* Dr. K. F. Wenckebach of Groningen has been appointed to the chair of Clinical Medicine in succession to Professor Stokvis, deceased. Dr. H. Thimmer has been recognised as *privat-docent* of Orthopædic Surgery.—*Berne:* The title of Professor has been granted to Dr. Oesterle, *privat-docent* of Pharmacology.—*Bologna:* Dr. Raffaele Brugia of Modena has been recognised as *privat-docent* of Neurology and Psychiatry.—*Breslau:* Dr. Otfried Förster has been recognised as *privat-docent* of Nervous Diseases and Psychiatry.—*Cadiz:* Dr. Luis Blanco Rivero has been appointed Professor of Topographical Anatomy.—*Freiburg:* Dr. Link and Dr. v. Eicken have been recognised as *privat-docenten* of Medicine.—*Göttingen:* Dr. P. Stolper of Breslau has been recognised as *privat-docent* of Forensic Medicine.—*Halle:* Dr. T. Ziehen of Utrecht has been appointed Professor of Neurology and Psychiatry in succession to Professor Hitzig, resigned.—*Kazan:* Dr. C. Archangelski of Odessa has been appointed to the chair of Pharmacology.—*Kharkoff:* Dr. Georgievski of St. Petersburg has been appointed Extraordinary Professor of Internal Medicine.—*Königsberg:* Dr. Karl Bonhoeffer of Breslau has been appointed Professor of Psychiatry. Until now only an Extraordinary Professorship of this subject existed.—*Madrid:* Dr. Tomás Maestro Pérez has been appointed to the chair of Forensic Medicine and Toxicology.—*Munich:* Dr. Emil Kräpelin of Heidelberg has been appointed to the chair of Psychiatry in succession to the late Dr. Bumm.—*Naples:* Dr. D. Morisani of Sienna has been appointed Professor of External Pathology.—*Odessa:* Dr. N. A. Shchégoleff of St. Petersburg has been appointed Professor of External Pathology.

Obituary.

WILLIAM HENRY CORFIELD, M.A., M.D. OXON., F.R.C.P. LOND.,

CONSULTING SANITARY ADVISER TO HIS MAJESTY'S OFFICE OF WORKS.

WE have already recorded the death of Dr. W. H. Corfield of Savile-row, London, which took place at Marstrand, Sweden, on August 26th, in his sixtieth year.

William Henry Corfield was born in 1843 at Shrewsbury and was educated at the Cheltenham Grammar School, whence he gained a Demyship in Natural Science at Magdalen College, Oxford, at the age of 17 years. In the subsequent October he matriculated and in 1863 he gained a first-class in mathematical moderations. In the same year he was selected by Professor Daubeny to accompany him in his examination of the volcanic appearances in the Montbrison district of Auvergne. In 1864 he took the degree of Bachelor of Arts. Early in the following year Dr. Corfield obtained, in open competition, the Sheppard Medical Fellowship at Pembroke College. In 1866 he won the Burdett-Coutts Scholarship and in 1867 the Radcliffe Travelling Fellowship. This gave him a chance of visiting the professional centres of the continent and, amongst other places, Paris, where he studied analysis with special reference to hygienic matters under Berthelot at the Collège de France and took the opportunity then afforded of clinical study under Béhier, Sée, Hardy, and other eminent teachers, besides attending Bouchardat's lectures on hygiene. He next proceeded to Lyons where he worked at clinical medicine and surgery and also made a special study of the remains of the remarkable aqueducts of ancient Lugdunum, visiting afterwards some of the medical schools in Italy and Sicily. In London he studied at University College Hospital and in 1868 he took his M.B. degree and was appointed examiner for honours in natural science at the University of Oxford. In 1869 he received the further appointment of professor of hygiene and public health at University College, London. He started in 1875 at this College the first hygienic laboratory established in London.

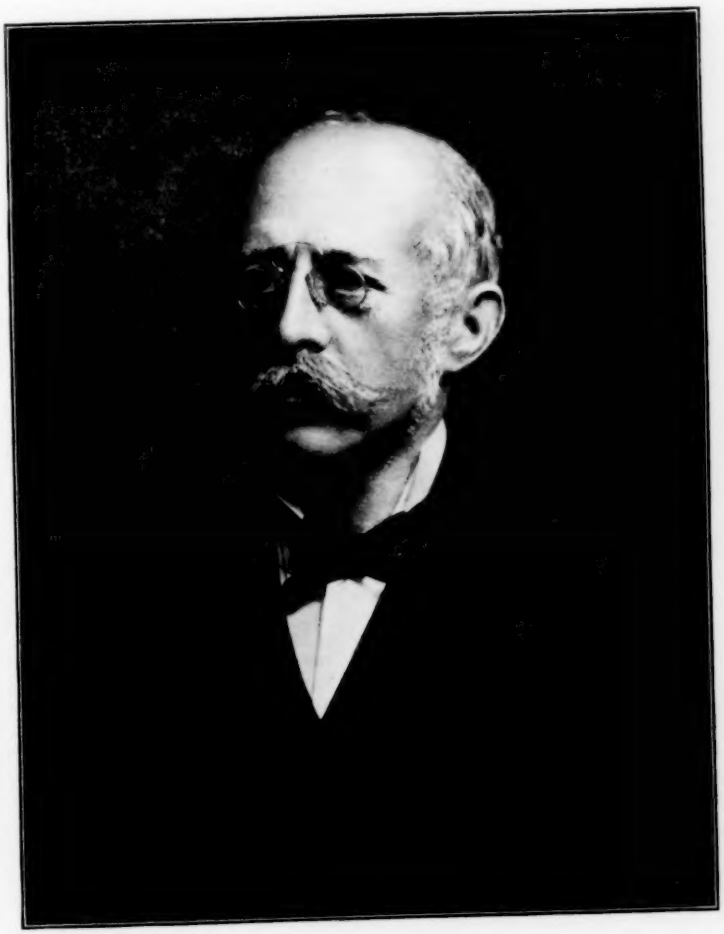
Dr. Corfield became a Member of the Royal College of Physicians of London in 1869 and in the same year was elected a member of the committee appointed by the British Association for the Advancement of Science to report on the treatment and utilisation of sewage. For six years he performed the laborious duties of reporter to the committee and was actively engaged in its important work which has had a great influence on the subsequent advancement of sanitary science. At the request of the members of this committee Dr. Corfield prepared "A Digest of Facts relating to the Treatment and Utilisation of Sewage," which was published in 1870 and has gone through two subsequent editions. His work embodied a vast amount of original research and was in no sense a report of the committee.

The alarming illness of the King (then Prince of Wales) at Londesborough Lodge, Scarborough, where he was attacked by typhoid fever at the close of the year 1871, called attention very prominently to the subject of house sanitation and Dr. Corfield made, at Lord Londesborough's request, a careful inspection of the condition of the lodge and described the results in a letter which appeared in the *Times* on Jan. 22nd, 1872. With reference to this Dr. Corfield said in a discussion on the Prevention of Enteric Fever at the Royal Medical and Chirurgical Society: "On going through my original notes I have been forced to the conclusion that it was not a case in which the disease was conveyed by sewer air, because the persons who were most in the house did not get it."

In 1871 Dr. Corfield was elected medical officer of health of Islington and in 1872 obtained the same post in St. George's, Hanover-square, which he held for 28½ years. He took his M.D. degree at Oxford in 1872 and was in the following year appointed lecturer on the laws of health at the Birmingham and Midland Institute, an office which he held for five years; afterwards he accepted a similar post at the Saltley Training College. In 1873 he delivered a course of lectures on Water-supply, Sewerage, and Sewage Utilisation to the Royal Engineers stationed at Chatham; these lectures were at once reprinted in the United States. Dr. Corfield in 1874 read a paper before the Epidemiological Society on the Alleged Spontaneous Production of the Poison of Enteric Fever, in which he vigorously combated the then prevailing views of Murchison as to the possibility of the *de novo* origin of the disease. His conclusions were summed up as follows: "I therefore maintain that foul air contaminated by decomposing animal matters is capable of producing mere diarrhœa, and that when it produces enteric fever it contains the poison of that disease, and that the arguments adduced to prove that this poison can be generated from such decomposing matters independently of a previous case of the disease are inadequate to do so; that in many of the cases where non-importation is supposed to have been all but proved it has not been even rendered a fair presumption, and, therefore, that in the present state of our knowledge we are not justified in saying that the disease ever arises *de novo*." In 1875 Dr. Corfield was elected a Fellow of the Royal College of Physicians of London, and in the same year he published some "Remarks on the Study and Practice of Public Medicine" which were delivered as an introductory lecture to the students of University College. One of his most interesting *brochures* is a pamphlet on "Sanitary Fallacies," which was the substance of an address delivered at Croydon in 1879 to the Sanitary Congress, wherein he sketches the history of the progress of medicine and dwells specially upon the current fallacies of the day, naming the untenable arguments adduced in favour of the spontaneous origin of zymotic disease, the misunderstanding of the water-carriage system for the removal of sewage, and the popular errors in regard to dietetics and vaccination. In 1879 he delivered the Cantor Lectures before the Society of Arts, taking for his subject "Dwelling Houses, their Sanitary Construction and Arrangements." These lectures were translated into French by Dr. Jardet and published in Paris. A very useful course of lectures which Dr. Corfield delivered at the rooms of the Society of Arts, under the auspices of the Trades' Guild of Learning and of the National Health Society, was published in 1880. The lectures were of that popular kind suggested by Canon Kingsley in his "Essay on Science and Health," where he claimed that people should be taught "something of how their bodies are made and how they work." It would be impossible to imagine anything more terse and clear for the understanding of unprofessional people than Dr. Corfield's exposition in these reprinted lectures, of the anatomy of the organs, the circulation and respiration, the process of nutrition, and the other functions of the body, with the conditions of health and disease.

Dr. Corfield devoted himself for over 30 years exclusively to sanitary practice, advising as to the causes of outbreaks of disease connected with sanitary defects and the remedying of such defects. In recognition of his devotion to this subject the Royal Institute of British Architects elected him an Honorary Associate. At the International Health Exhibition in 1884 he was director of the hygienic laboratory there and he made some very important contributions to the official literature of the exhibition. One of the most valuable of these was a lecture on Foul Air in Houses. He was also a member of the committee that superintended the construction of the "healthy and unhealthy houses" which attracted so much attention at that exhibition. In 1897 he was appointed honorary sanitary adviser to University College Hospital, in 1899 consulting sanitary adviser to His Majesty's Office of Works, and in 1902 honorary sanitary adviser to University College. In 1885 he delivered the anniversary address to the Sanitary Institute on the Water-supply of Ancient Roman Cities, with especial reference to Lugdunum (Lyons), in which he showed how the Romans employed inverted syphons made of lead for the purpose of carrying their aqueducts across deep valleys, illustrated by lithographs from sketches made by himself on the spot. In 1893 he delivered his Harveian Lectures before the Harveian Society of London on Disease and Defective House Sanitation. These lectures have been translated into French and published in the *Bulletin* of the Royal Society of Public Health of Belgium (1899) and also into Hungarian under the auspices of the Royal Society of Public Health of Hungary.

His work was recognised abroad, for he was "Membre d'honneur" of the Royal Society of Public Health of Belgium, honorary member of the Society of Hygiene of France and of the Hungarian Society of Public Health, honorary corresponding member of the Imperial Society of Medicine of Constantinople and of the Royal Society of Hygiene of Italy, and Fellow of the Medical Society of



PROFESSOR W. H. CORFIELD.

Sweden. The Royal Society of Public Medicine of Belgium awarded him its bronze medal for his work in connexion with public health. He was president of the Public Health Section of the British Medical Association held at Bristol in 1894 and of Section I. of the Congress of the Sanitary Institute held at Newcastle-on-Tyne in 1896. It was through his determined efforts that the International Congress of Hygiene was held in London in 1891, under the presidency of the King (then Prince of Wales). Dr. Corfield acted as foreign secretary to that Congress and through his personal acquaintance with many of the leading hygienists in various countries was able to obtain the formation of committees for making the Congress known abroad and for thus insuring the attendance of foreign hygienists. He was for more than 20 years chairman of committee of the Sunday Society, the object of which is the opening of museums, picture galleries, and public libraries on Sundays; he played a leading part in the movement which has resulted in the opening of our national museums to the public on Sunday afternoons; whilst his literary talents were by no means too exclusively devoted to professional purposes, as is witnessed by his papers on "Mountain Climbing," on "Etna in Winter," on "The Volcanoes of Auvergne," and on "Pile Dwellings in the Swiss Lakes."

Dr. Corfield represented His Majesty's Office of Works at the International Congress of Hygiene and Demography held in Paris in 1900, and was elected an honorary president of the Congress. He presided at the conference held by the Sanitary Institute in Paris in August, 1900, under the auspices of the Société Française d'Hygiène, and in 1902 he was elected President of the Epidemiological Society. No one, however, can be incessantly at work and most men who work hard have "hobbies." Dr. Corfield's hobbies were geology, fishing, golf, and, as is the case with many medical men, art. He amassed an extensive collection of geological specimens and discovered the presence of lithodomi in the Silurian strata, thus removing to an earlier age than had previously been known the existence of boring bivalves. He had been an ardent angler all his life, being especially fond of salmon fishing. He had a choice library of works on angling and was well known as a Bewick collector as well as a collector of fine bindings.

Dr. Corfield married in 1876 Emily Madelina, youngest daughter of the late Mr. John Pike, F.S.A., and leaves six children, the eldest of whom was a mathematical scholar of Pembroke College, Oxford. Although Dr. Corfield died in a foreign land he was not entirely amongst strangers in his last hours, his daughter and one of his sons being with him.

EDMOND ISIDORE ETIENNE NOCARD.

PROFESSOR NOCARD, director of the Veterinary School at Alfort, near Paris, who has just died in his fifty-fourth year, enjoyed a European reputation as an original investigator on the subject of the epidemic and communicable diseases of the lower animals. An outline of his career has been already given by our Paris correspondent in THE LANCET of August 8th, p. 430. Of his exceedingly comprehensive work perhaps the most important related to tuberculosis and its results were embodied in his "Tuberculose des Animaux Domestiques." He was a firm believer in the identity of tuberculosis in all circumstances, irrespective of the animal affected, and his views were therefore totally opposed to those held by Professor Robert Koch as to the existence of an essential distinction between the Perlsucht of bovine animals and human tuberculosis. Mention must also be made of his important contributions to our knowledge of actinomycosis, anthrax, pneumonia, and rabies. His investigations were therefore mainly bacteriological and his name has been given to a bacillus found in the superficial ulcers of cattle suffering from farcy and also called *bacille du farcin du bœuf*. Professor Nocard was a member of the Royal Agricultural Society of England and was well known in Ireland where the practical value of some of his recent scientific work has been gratefully recognised. The sanction of the French Ministry of Agriculture having been obtained, he was induced by the Department of Agriculture and Technical Instruction for Ireland to go to Ireland for the purpose of investigating the cause of the high death-rate in calves which prevailed, especially in Munster. A bacteriological laboratory was provided for him in Limerick and he arrived in that country in March, 1901. His report was forwarded from the Veterinary School of Alfort under the French Ministry of Agriculture in October, 1901. His paper, which appeared in the Transactions of the Department of Agriculture and Technical Instruction for Ireland, proved of great practical value and as an example of methods of research in this comparatively new domain of bacteriology is of much interest to scientific medical men. Sir Horace Plunkett stated of him in the official Government report as follows: "The department feels that Professor Nocard has placed the agriculturalists, not of Ireland only, but of the entire world, under obligations by the most successful issue of his admirably conceived series of experiments and investigations."

Professor Nocard was engaged for many years in inquiries in connexion with outbreaks of disease among domestic animals in France. In a communication read at the International Congress of Hygiene held at Madrid some six years ago he made known the discovery of the germ of contagious pleuro-pneumonia which had long baffled bacteriologists all over the world. He made many other important discoveries in bacteriology and since Professor Pasteur—whose enthusiastic pupil he was—has probably done more than anybody else in his own special line of investigation. Professor Pasteur, as is well known, was not a medical man but a chemist and bacteriologist. Nobody can doubt, however, the admirable and far-reaching effects of his work for the benefit of humanity. Professor Nocard's investigations and discoveries in connexion with diseases in the lower animals—some of them in affinity with our own and some of them infectious to man—may perhaps have a similar outcome. His life work has been widely recognised by many honours and decorations in his own and in foreign countries. Professor Nocard was, moreover, the recipient of many purely medical distinctions. It is 17 years since he was elected a member of the Académie de Médecine and at his funeral, which was conducted with military honours, the chief pall-bearer was the President of the Académie de Médecine.

POST-GRADUATE WORK ABROAD.

I. PARIS.

BY A. A. WARDEN, M.D. GLASG. AND PARIS,
PHYSICIAN TO THE HERTFORD BRITISH HOSPITAL, PARIS.

DURING most of the nineteenth century English and Scottish graduates flocked to Paris to complete their medical education. From the middle ages their forefathers had gathered at the Sorbonne and the University of Paris to study the humanities and the philosophies of the time. Since 1870—the *année terrible* when for a time the destiny of France seemed clouded over—the graduate has turned rather to Berlin or to Vienna, either because of the reputation for careful and thorough original work that these schools have obtained or more probably on account of the effort made in them to meet the wants of foreigners and to supply them with the necessary opportunities for further research. And yet, if Paris no longer attracts English-speaking medical students, their place has been taken by others and the Parisian clinics and operating theatres are crowded with men from Russia and Germany and Southern Europe generally, as well as from the Republics of South America. In the last decade, also, the tide seems to be turning and, owing possibly to the gradually increasing appreciation of the immense services rendered by Pasteur and his Institute to both medicine and surgery, the Paris school bids fair to hold its own even against the latest of post-graduate institutions—those on the other side of the Atlantic.

It is always difficult to measure one's contemporaries but we may be sure, if "there were giants in those days," there are giants still to-day and that as there were brave men before Agamemnon, so there have been brave men since. Pasteur, Trousseau, Louis, Laënnec and Dupuytren have left worthy successors and Duclaux, Dieulafoy, Lancereaux, Doyen, Hartmann, Lannelongue, and Terrier are some among many that might be named. It must surely also be considered a period of exceptional activity and brilliancy when the authors of much remarkable work are still to the fore. It is not yet ten years since Roux made his first injection of anti-diphtheritic serum in Grancher's, Descroizille's, and Jules Simon's wards in the Hôpital des Enfants Malades in the rue de Sèvres. Feb. 1st,

1894, was the date at which the average mortality from diphtheria in these wards fell from 50 to 24 per cent. Only the other day another of Pasteur's pupils, Metchnikoff, succeeded in inoculating syphilis into one of the lower animals, the genuine nature of the chancre being attested at the sitting of the Academy of Medicine by Fournier himself. Brouardel, Netter, Roger, Chantemesse, Bouchard, Robin, Babiniski, Hayem, Chauffard, and Debove well represent scientific medical practice. Berger, Pozzi, Segond, Broca, Tuffier, Kirmisson, Legneu, and Lejars are names in surgery known all the world over.

Useful as the special post-graduate courses are, the chief interest of a visit to Paris lies in the fact that the clinical lectures, the operations, the ward visits, and the examination of the patients are, each morning and in every hospital, freely open to any physician, French or foreign, who has only to present his card to the *concierge* of the hospital and to ask by name for the surgeon or physician he may wish to see. The value of this privilege is well seen in the experience of a young graduate of my acquaintance who came here last year with the intention of doing further work in nervous diseases. The physician whose service he visited with a card of introduction soon gave him charge of a certain number of beds in one of the great nervous clinics, where he was admitted to the ordinary privileges of the other *internes* as to library, laboratory, and even meals, and where he remained for nearly six months. An informal post-graduate course, if you like, but invaluable in the opportunities it offered. It may be added that the hospitals of Salpêtrière and Bicêtre possess between them several thousand beds available as clinical material.

Paris in fact offers a unique field and unlimited opportunity to the man who wishes to work and who knows what he wants to work at. In my "Handbook to the Paris Medical School"[1] I have endeavoured to sketch the general course that should be pursued, giving a fairly complete account of the details of scientific medical education in Paris and summarising them in a table in the form of a diary.

The visitor's first difficulty is, naturally, where to pitch his tent and this is not lessened by the knowledge that the various hospitals in which he proposes to spend most of his time are considerably scattered. None the less, it may be said that for him the central locality is the so-called Quartier des Ecoles or Quartier Latin on the left bank of the Seine. Here, within a few hundred yards of each other, on the streets running off the Boulevard St. Michel, are the school of medicine buildings with the anatomy rooms and laboratories, the Sorbonne, the Collège de France, most of the medical publishers and booksellers and surgical instrument-makers, and a little further off such important hospitals as La Charité, Läennec, Necker, Sick Children's, the Clinique Baudelocque. Here, too, will be found hotels and *maisons meublées* with furnished rooms and board at reasonable rates. The boulevards St. Michel and St. Germain are the chief thoroughfares of this quarter and countless generations of students have lived in the streets off them, such as the rue des Ecoles, the rue de l'Odeon, and the rue Monsieur-le-Prince where Oliver Wendell Holmes (not to speak of the great Auguste Comte) had his rooms about 70 years ago.

The hotel chosen, the next step is to arm oneself with the *carte d'entrée des hôpitaux* issued gratuitously on presentation of one's card at the offices of the Assistance Publique 3, Avenue Victoria. This card carries a formal request to the various directors of hospitals, &c., to facilitate the visit of their establishment and to give information. While neither absolutely necessary nor always asked for, this card is a veritable passport, especially if the bearer's knowledge of the French language is limited. It is also useful, as on it are printed the names of all the general and special hospitals under the jurisdiction of the Assistance Publique. Next a visit to the buildings of the Faculty in the Place de l'École de Médecine and a glance at the many placards and notices there exposed will show the official courses of lectures and cliniques going on at the time. Many physicians and surgeons who have wards and who may perhaps give special attention to the development of post-graduate instruction, having no chair, are unconnected with the Faculty and their names find no place here. Notices of these and other extramural courses will only be found in the hospitals themselves or in the medical journals, such as the *Bulletin Médical*, *La Presse Médicale*, &c. I should strongly advise the new arrival to purchase the last few numbers of one such journal in order to put himself *au courant* with all that may be going on. For the whereabouts of the hospitals, the names of the men on the visiting staffs, the days of operations and ward visits, he must rely upon the *Guide Médical* published in 1900 by Maloine and now a little out of date or my own handbook to which I have already referred.

In the last six years facilities for post-graduate work in Paris have so greatly developed that there is probably now no department in medicine and no period of the year in which abundant opportunities are not available. The invaluable and complete course in bacteriology at the Pasteur Institute is of such duration—three months—that it takes place at most twice in the year and names must be sent in for it some time in advance to Dr. Roux or his assistants. With regard to most of the other courses there is frequently an *embarras de choix*. Thus, at present, during the summer months, between July and September, there are no fewer than four separate practical post-graduate courses in laboratory methods applied to clinical medicine, under the direction and in the wards of Dieulafoy, Landouzy, Cornil, and Brissaud. Similar courses are given in surgery, operative surgery, midwifery and gynæcology, children's, genito-urinary, and tropical diseases, and in most of the specialities. Other official and free courses are given in summer by those temporarily replacing the professor, usually in clinical medicine and surgery. In operative surgery courses may be taken practically all the year round from the prosectors under Dr. Hartmann's superintendence. Five years ago the number of graduates, chiefly foreigners, following these courses of operative surgery was 22; this summer (between March and July) there have been 240. They are divided into several series, thus: (1) operations on the male genito-urinary tract; (2) gynæcological operations; (3) bones and joints; (4) stomach, intestines, liver, &c.; (5) emergency operations; (6) nervous system; and (7) neck and trunk. Valuable clinical experience can also be obtained at the out-door consultation departments of the larger hospitals. These are well organised, the number of patients is large and the number of students is small, the teaching is good, and the morning there is often far more profitable than that spent on the seats of an operating theatre at a distance that makes the finer and more important details of the operation invisible.

In concluding this brief sketch let me add that there are English, Scottish, Irish, and American practitioners in Paris ready to bear a helping hand to any countryman in difficulty or doubt.

(To be continued.)

[1] An English Handbook to the Paris Medical School. 1903. London: J. and A. Churchill.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 8478 births and 4616 deaths were registered during the week ending August 29th. The annual rate of mortality in these towns, which had been 14·3, 15·7, and 15·7 per 1000 in the three preceding weeks, further rose to 16·0 per 1000. In London the death-rate was 14·3 per 1000, while it averaged 16·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 3·5 in Devonport, 8·3 in Bournemouth, 8·7 in Hastings and in Blackburn, 8·9 in Croydon, 9·2 in Leyton, and 9·8 in Willesden. Walthamstow, Bristol, Smethwick, and Swansea; the highest rates were 21·0 in Nottingham and in Burnley, 21·8 in Wigan, 21·9 in Hull, 22·3 in Sunderland, 22·8 in Rotherham, 23·0 in Aston Manor, 25·2 in Middlesbrough, and 26·3 in Sheffield. The 4616 deaths in these towns included 1060, which were referred to the principal infectious diseases, against 717, 887, and 1006 in the three preceding weeks; of these 1060 deaths, 821 resulted from diarrhœa, 62 from diphtheria, 61 from whooping-cough, 60 from measles, 32 from scarlet fever, 22 from "fever," and two from small-pox. No death from any of these diseases was registered in Bournemouth, Devonport, Burton-on-Trent, King's Norton, Coventry, Halifax, or Tynemouth; while the highest death-rates from the principal infectious diseases were recorded in Aston Manor, Birkenhead, Wigan, Burnley, Sheffield, Rotherham, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Sheffield, Middlesbrough, and Sunderland; from diphtheria in Salford and Rotherham; from whooping-cough in Rochdale and Burnley; and from diarrhœa in Aston Manor, Grimsby, Birkenhead, Bootle, Wigan, Bolton,

Burnley, Sheffield, Rotherham, Hull, and Middlesbrough. The mortality from scarlet fever and from "fever" showed no marked excess in any of the large towns. Of the two fatal cases of small-pox registered in these towns one belonged to Liverpool and one to South Shields. The Metropolitan Asylums hospitals contained 57 small-pox patients on Saturday, August 29th, against 48, 45, and 52 on the three preceding Saturdays; 11 new cases were admitted during the week, against four, nine, and 13 in the three preceding weeks. The number of scarlet fever patients remaining under treatment in these hospitals and in the London Fever Hospital, which had been 1771, 1758, and 1797 at the end of the three preceding weeks, had declined again to 1774; 199 new cases were admitted during the week, against 216, 215, and 225 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 120 in each of the two preceding weeks, declined to 114 and were 23 below the number in the corresponding period of last year. The causes of 40, or 0·9 per cent., of the deaths in the 76 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Nottingham, Salford, Newcastle-on-Tyne, and in 46 other smaller towns; the largest proportions of uncertified deaths were registered in Liverpool, Manchester, Leeds, Sheffield, and Gateshead.

In 76 of the largest English towns 8683 births and 4548 deaths were registered during the week ending Sept. 5th. The annual rate of mortality in these towns, which had been 15·7, 15·7, and 16·0 per 1000 in the three preceding weeks, declined again last week to 15·7 per 1000. In London the death-rate was 14·1 per 1000, while it averaged 16·5 in the 75 other large towns. The lowest death-rates in these towns were 3·3 in Kings Norton, 5·4 in Leyton, 6·6 in Croydon, 7·2 in Handsworth, 8·6 in Hornsey, 9·4 in Willesden, and 9·9 in East Ham and in Bournemouth; the highest rates were 21·0 in Burnley, 21·7 in Gateshead, 21·8 in Wigan, 21·9 in Liverpool, 22·3 in Bootle, 22·6 in Sheffield, 23·0 in Birkenhead, 24·4 in Hull, and 25·2 in Middlesbrough. The 4548 deaths in these towns last week included 973 which were referred to the principal infectious diseases, against 887, 1006, and 1060 in the three preceding weeks; of these 973 deaths, 731 resulted from diarrhœa, 61 from whooping-cough, 51 from measles, 51 from diphtheria, 42 from "fever" (principally enteric), 30 from scarlet fever, and seven from small-pox. No death from any of these diseases was registered last week in Hornsey, Northampton, Kings Norton, or Merthyr Tydfil; among the other towns they caused the lowest death-rates in Leyton, Hastings, Bournemouth, Reading, Coventry, Rochdale, Halifax, and South Shields; and the highest rates in Stockport, Bootle, Wigan, Bury, Salford, Sheffield, Hull, and Middlesbrough. The greatest proportional mortality from measles occurred in Ipswich, Warrington, and Sheffield; from scarlet fever in Bury; from diphtheria in Brighton; from whooping-cough in Burnley; from "fever" in Bootle; and from diarrhœa in Aston Manor, Stockport, Liverpool, Bootle, Wigan, Bury, Salford, Sheffield, Hull, and Middlesbrough. Of the seven fatal cases of small-pox registered in the 76 towns last week one belonged to London, one to Hanley, one to Burton-on-Trent, one to Liverpool, one to Halifax, one to Newcastle-on-Tyne, and one to Tynemouth. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 45, 52, and 57 at the end of the three preceding weeks, had declined again to 49 at the end of last week; six new cases were admitted during the week, against nine, 13, and 11 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital at the end of the week was 1796, against 1758, 1797, and 1774 at the end of the three preceding weeks; 229 new cases were admitted during the week, against 215, 225, and 199 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 120, 120, and 114 in the three preceding weeks, rose again last week to 123, but were 16 below the number in the corresponding period of last year. The causes of 45, or 1·0 per cent., of the deaths in the 76 large towns last week were not certified, either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Leicester, Nottingham, Hull, Newcastle-on-Tyne, and in 53 other smaller towns; the largest proportions of uncertified deaths were registered in West Bromwich, Wallasey, Liverpool, Manchester, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 14·7, 15·4 and 15·1 per 1000 in the three preceding weeks, was again 15·1 per 1000 during the week ending August 29th, and was 0·9 per 1000 lower than the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·9 in Perth and 14·1 in Edinburgh to 15·8 in Greenock, and 20·1 in Paisley. The 495 deaths in these towns included 58 which were referred to diarrhœa, eight to measles, seven to scarlet fever, seven to whooping-cough, six to diphtheria, and four to "fever." In all, 90 deaths resulted from these principal infectious diseases, against 60, 69, and 96 in the three preceding weeks. These 90 deaths were equal to an annual rate of 2·8 per 1000, which was 0·9 per 1000 below the mean rate for the previous week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 34, 45, and 65 in the three preceding weeks, declined again to 58, of which 37 were registered in Glasgow, six in Paisley, four in Dundee, four in Greenock, three in Leith, and two in Edinburgh. The deaths from measles, which had been five, five, and six in the three preceding weeks, further rose to eight, and included four in Glasgow and three in Edinburgh. The fatal cases of scarlet fever, which had been six, three, and none in the three preceding weeks, increased again to seven, of which four occurred in Glasgow and two in Edinburgh. The deaths from whooping-cough, which had been five, 12, and nine in the three preceding weeks, declined again to seven, and included four in Glasgow and two in Greenock. The fatal cases of diphtheria, which had been one and six in the two preceeding weeks, were again six, and included four in Glasgow and two in Edinburgh. The deaths referred to different forms of "fever," which had been six, three, and nine in three preceding weeks, declined again to four, of which three were recorded in Glasgow. The deaths attributed to diseases of the respiratory organs, which had been 54, 50, and 51 in the three preceding weeks, were again 51 and were slightly below the number in the corresponding period of last year. The causes of 18, or nearly 4 per cent., of the deaths in these eight towns were not certified.

The annual rate of mortality in eight of the principal Scotch towns, which had been 15·1 per 1000 in each of the two preceding weeks, increased to 16·6 per 1000 during the week ending Sept. 5th and was 0·9 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 11·8 in Leith and 13·8 in Paisley, to 16·5 in Greenock and 18·8 in Glasgow. The 542 deaths in these towns included 58 from diarrhœa, ten from "fever," nine from whooping-cough, four from measles, four from diphtheria, and three from scarlet fever, but not one from small-pox. In all, 88 deaths were referred to these principal infectious diseases last week, against 69, 96, and 90 in the three preceding weeks. These 88 deaths were equal to an annual rate of 2·7 per 1000, which was 0·7 per 1000 below the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of diarrhœa, which had been 45, 65, and 58 in the three preceding weeks, were again 58 last week, and included 35 in Glasgow, seven in Aberdeen, seven in Paisley, four in Greenock, two in Edinburgh, and two in Dundee. The deaths referred to different forms of "fever," which had been three, nine, and four in the three preceding weeks, rose again last week to ten, of which six were registered in Glasgow and two in Dundee. The fatal cases of whooping-cough, which had been 12, nine, and seven in the three preceding weeks, increased again to nine last week, and included six in Glasgow and two in Dundee. The deaths from measles, which had been five, six, and eight in the three preceding weeks, declined again last week to four, of which two occurred in Glasgow and two in Paisley. The fatal cases of diphtheria, which had been six in each of the two preceding weeks, decreased to four last week, and included two in Glasgow and two in Edinburgh. The three deaths from scarlet fever showed a decline of four from the number in the preceding week, and included two in Glasgow. The deaths referred to diseases of the respiratory organs in these towns, which had been 51 in each of the two preceding weeks, rose last week to 54, but were seven below the

number in the corresponding period of last year. The causes of 14, or nearly 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 18·2, 18·0, and 22·8 per 1000 in the three preceding weeks, further rose to 23·1 per 1000 during the week ending August 29th. During the past four weeks the death-rate has averaged 20·5 per 1000, the rates during the same period being 14·0 in London and 13·1 in Edinburgh. The 168 deaths of persons belonging to Dublin registered during the week under notice were two in excess of the number in the preceding week and included 18 which were referred to the principal infectious diseases, against eight, seven, and 12 in the three preceding weeks; of these, nine resulted from diarrhœa, four from "fever," three from whooping-cough, and two from diphtheria, but not one from small-pox, measles, or scarlet fever. These 18 deaths were equal to an annual rate of 2·5 per 1000, the death-rates from the principal infectious diseases being 2·9 in London and 1·7 in Edinburgh. The fatal cases of diarrhœa, which had been five, two, and ten in the three preceding weeks, declined again to nine. Four deaths were referred to "fever," against two and none in the two preceding weeks. The mortality from both diphtheria and whooping-cough was in excess of that recorded in the preceding week. The 168 deaths in Dublin included 44 of children under one year of age and 33 of persons aged 60 years and upwards; the deaths of infants were slightly in excess of the number in the preceding week, while those of elderly persons showed a decline. Eight inquest cases and six deaths from violence were registered and 61, or more than a third, of the deaths occurred in public institutions. The causes of ten, or nearly 6 per cent., of the deaths registered in Dublin were not certified.

The death-rate in Dublin, which had been 18·0, 22·8, and 23·1 per 1000 in the three preceding weeks, declined again to 15·4 per 1000 during the week ending Sept. 5th. During the past four weeks the death-rate has averaged 19·8 per 1000, the rates during the same period being 14·3 in London and 13·7 in Edinburgh. The 112 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 56 from the number in the preceding week and included 16 which were referred to the principal infectious diseases, against seven, 12, and 18 in the three preceding weeks; of these ten resulted from diarrhœa, four from whooping-cough, one from scarlet fever, and one from "fever," but not one from small-pox, from measles, or from diphtheria. These 16 deaths were equal to an annual rate of 2·2 per 1000, the death-rates last week from the principal infectious diseases being 2·8 in London and 1·1 in Edinburgh. The deaths from diarrhœa, which had been two, ten, and nine in the three preceding weeks, rose again last week to ten. The fatal cases of whooping-cough, which had been one, one, and three in three preceding weeks, further rose to four last week. The 112 deaths in Dublin last week included 29 of children under one year of age and 27 of persons aged 60 years and upwards; compared with the numbers in the preceding week the deaths of infants and those of elderly persons showed a decline of 15 and six respectively. Three inquests cases and four deaths from violence were registered, and 44, or nearly two-fifths, of the deaths occurred in public institutions. The causes of three, or nearly 3 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE new regulations for this service, which have been made public now, will be found on p. 774 of this issue of THE LANCET.

The following appointments are announced:—Fleet Surgeon E. B. Townsend to the *President*, additional, for three months' course of hospital study. Staff Surgeon W. R. M. Young to the *President*, additional, for three months' course of hospital study. Surgeons: N. J. Roche to the *Benbow*; W. S. H. Sequeira to the *Odin*; K. H. Jones to the *Pembroke*, additional; R. St. G. S. Bond to the *St. Vincent*; A. O. Bobardt to the *Royal Arthur*, for the *Katoomba* and Medical Depôt, Sydney; J. St. J. Murphy to the *Britannia*; W. E. Mathew to the *London*; H. Hunt to the *President*; L. Kilroy to the *President*; and J. P. H. Greenhalgh to Plymouth Hospital. Civil Practitioner J. Fendlay has been appointed Surgeon and Agent at Rattray Head.

ARMY MEDICAL STAFF.

Surgeon-General Sir W. D. Wilson, K.C.M.G., who has now reached the limit of age, is continued on the Active List as a Supernumerary to the Establishment, under the provisions of Article 473 of the Royal Warrant of Oct. 26th, 1900, to enable him to complete the official report on the medical arrangements of the war in South Africa.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel F. A. Harris, from half-pay, retires on retired pay. Dated Sept. 9th, 1903. Captain R. T. Brown has been transferred from half-pay to be Captain. Dated August 12th, 1903. Captain H. V. Prynne has joined at Woolwich. Captain A. R. O'Flaherty has been appointed Officer Commanding the Station Hospital, Indore. Captain F. G. Richards has been transferred from the Poona District to the Mhow District. Lieutenant F. A. H. Clarke has embarked in the transport *Soudan* at Southampton. Captain C. T. Samman will proceed for service in Jamaica. Lieutenant-Colonel J. D. T. Reckitt will proceed for service in Bombay, embarking probably in November next. Pending the appointment of a successor to Colonel W. McWatters, Lieutenant-Colonel R. G. Thomsett will officiate as Principal Medical Officer, Southern District. Major E. Davis has embarked for Bombay. Captain A. C. Lupton, half-pay, has been appointed for temporary duty in the Home District, pending embarkation. Lieutenant-Colonel W. G. Macpherson, now in the Home District, has been ordered to North China for duty. Major J. R. Mallins has been instructed to join at Woolwich for duty, pending embarkation. Captain C. S. Smith, who has been attached to the Coldstream Guards, has been appointed for duty with the Guards Brigade at Aldershot. Captain C. B. Lawson is to proceed for service at Malta. Lieutenant J. W. S. Seccombe is to embark for service in West Africa. Captain H. E. M. Douglas has left England for Somaliland for duty with the field force.

ROYAL ARMY MEDICAL COLLEGE.

The first course of instruction for captains of the Royal Army Medical Corps has lately come to a close, and the result of the examination has been very satisfactory. All the officers who presented themselves for the examination passed, and out of 26 officers who underwent the test 22 obtained the marks necessary to qualify as specialists.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 4th Durham: Surgeon-Lieutenant Henry William Martyn Strover resigns his commission and is appointed Second Lieutenant. Dated Sept. 5th, 1903.

Rifle: 3rd (Cambridgeshire) Volunteer Battalion the Suffolk Regiment: Surgeon-Lieutenant F. A. Wagstaff to be Surgeon-Captain (dated May 14th, 1903); Captain F. E. A. Webb, from the Harwich Volunteer Infantry Brigade Bearer Company, is re-transferred as Surgeon-Captain, Supernumerary (dated June 27th, 1903). 1st Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant J. F. Christie to be Surgeon-Captain. Dated Sept. 9th, 1903. 7th Middlesex (London Scottish): Surgeon-Captain J. Cantlie to be Surgeon-Major (dated Sept. 9th, 1903); Surgeon-Lieutenant G. C. Cathcart to be Surgeon-Captain (dated Sept. 9th, 1903). 19th Middlesex (Bloomsbury): William Francis Roe to be Surgeon-Lieutenant. Dated Sept. 9th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Manchester Companies: Lieutenant R. W. B. March to be Captain. Dated Sept. 9th, 1903.

OFFICERS' DRESS AND EQUIPMENT.

By ironical chance the issue of the *Times* publishing the evidence given by Sir Henry Brackenbury before the Royal Commission about our deficiency in military and medical stores and war material also contained a long communication from a military outfitter describing all the changes of uniform which have been introduced into the army of late and which have made such a puzzle of the dress regulations.

OFFICERS' EXPENSES.

Lord Roberts has issued a special Army Order on this subject, and certainly not before it was required if

the army is to attract a number of young fellows of limited means into its commissioned ranks who are really desirous of making it their profession. It is quite right to throw the responsibility of checking all unnecessary extravagance upon the officer commanding regiments, and this the Commander-in-Chief very plainly intimates will be done in future. No one wants to see a lot of mere bookworms as officers, but the barrier of wealth should be removed from young men of physical and intellectual vigour with military tastes, predilections, and ambition.

Surgeon-General T. Tarrant, retired pay, late Army Medical Staff, to be an Honorary Physician to His Majesty, vice Surgeon-General A. H. Fraser, retired pay, deceased. Dated Sept. 9th, 1903.

Colonel P. F. O'Connor, C.B., I.M.S., who has been principal medical officer of the British forces in North China, has left Tientsin for India, and has been relieved by Lieutenant-Colonel L. A. Waddell, I.M.S.

The health of the troops in Somaliland is reported to be good.

It is reported that the 2nd Battalion of the King's Shropshire Light Infantry has been attacked by cholera at Ranikhet, Bengal, and that Lieutenant Carter and ten men have died from the disease.

Correspondence.

"Audi alteram partem."

WHAT IS SCIATICA?

To the Editors of THE LANCET.

SIRS,—I wish to thank you most heartily for your notice of my address on Sciatica which appeared in THE LANCET of August 22nd, p. 511. I esteem it a favour that you have given up so much space to the statement of my views in connexion with this complaint and I am greatly obliged for your courteous comments on my heterodox opinions as to the real nature of the pains in cases of sciatica. When I started the campaign against the received explanation of these symptoms I quite saw that I was, so to speak, flying in the face of settled beliefs—beliefs, let me add, unconsciously buttressed by the apparent results of treatment of an anti-neuralgic nature. May I say I fear that a good deal of our pathology is founded on this kind of inverted reasoning—that is, "because so-and-so does good then the disease is necessarily of a kind to correspond with the successful medicaments."

Returning to your leading article, will you allow me in self-defence to reply shortly to one or two points? First, you seem (but in this I may be mistaken) to pooh-pooh "references" as regards pain. But is not the majority of pains "referred pains"? All abdominal and many chest pains, for example, are allowed to be of that kind. Take the supreme pain of angina pectoris when the pain goes down the arm, Is that merely an affection of the brachial plexus? Again, "tenderness on pressure," Is there in the whole range of medicine a surer "sign" of the real situation of any disease than that elicited by careful exact pressure over the spot suspected? A third and most important criticism is where you say I deny that there is ever neuritis present. I do not think I quite affirmed that neuritis is altogether and always absent. Indeed, I do not believe it to be so. But I wished to throw down my humble gauntlet against the accepted pathology of sciatica and therefore I may have put my position a little too strongly. You will allow it is very difficult to prove the negative as against any proposition. May I ask my opponents to do me the honour to show that they have at least by careful exploration and examination tried to prove that my views are false and ill-founded.

I have to thank Mr. J. S. Mackintosh for his kind reference to my address. But I hope he will excuse me when I say that I do not see the *sequitur* in the case he gives of rheumatoid arthritis and sciatica. On his own showing the "sciatica" on the side which was not stretched equally recovered with that to which extension was applied. But, in the name of all that is reasonable, are not the sciatic pains sufficiently explained by such an irritative process as rheumatoid arthritis going on in those articulations? Surely such deforming changes are decidedly inflammatory and thus likely to cause the symptoms which he classes as being due to "sciatica." I hope with your kind leave to publish by-and-by one or two cases caught in the intermediate stage between "sciatica" and "rheumatoid arthritis." It is all a question of names. If a cure takes place the disease is labeled sciatica, if it does not (as is too often the case, among the labouring classes especially) it is then designated "rheumatoid arthritis," both being merely stages of the same disease although set down at present in two distinct categories. I am sorry the term "barbarous" offends Mr. Mackintosh and others of my friends. But while I adhere to the word itself as the only one I know which expresses my meaning I do not at all affirm that the operations I refer to are unjustifiable. Many such proceedings, as in the days of Ambroise Paré, mark stages on the road of progress.

I am, Sirs, yours faithfully,

Sept. 1st, 1903. W. BRUCE, M.D. Aberd.

MEDICAL DOCTRINES OF HEREDITY.

To the Editors of THE LANCET.

SIRS,—One might vary an ancient proverb, which says: "Wisdom is the principal thing: get wisdom, and with all thy getting get understanding," into "Logic is a good thing: get logic, and with all thy getting get common sense." As I did not feel justified in my letter to you of August 29th (p. 629), which dealt with the arguments of Dr. A. W. Gilchrist and Dr. J. Wiglesworth, in prolonging that letter so as to deal adequately with the dead-doing letter of Dr. C. Mercier, except to point out that his first objection was simply a piece of pedantry, I therefore ask a small part of your space so as to examine the reasoning of this most profound logician's examination of my reasoning. The first thought that must have occurred to everyone after finishing that logical (?) effusion would be to ask if a logician of the calibre of Dr. Mercier had ever heard of a fallacy called the Fallacy of Accent in which "the erroneous quoting of an author by unfairly separating a word from its context or unduly emphasising a word or italicising words which were not intended to be italicised gives rise to cases of this fallacy." Dr. Mercier disputes my statement, where he thinks I have fallen into the converse Fallacy of Accident, "that no two members of a litter of pups or kittens exactly resemble one another." He asks, "When did ever two kittens or puppies have the same number of legs or tails?" One would have thought that a man like Dr. Mercier, who has written so much on heredity, would at least have known what is meant by a character or trait. However, I suppose I must prove my statement. Permit me for purposes of this proof to make one or two quotations.

> If under changing conditions of life, organic beings present individual differences in all parts of their structure, and this cannot be disputed, &c. (Darwin: Origin of Species, p. 160.)
>
> Again, we have shown by abundant evidence, that the variation that occurs is very large in amount—usually reaching 10 or 20 and sometimes even 25 per cent. of the average size of the varying part; while not one or two only but from 5 to 10 per cent. of the specimens examined exhibit nearly as large an amount of variation. (Wallace: Darwinism, p. 81.)
>
> Everyone knows that in each litter of kittens or of puppies no two are alike. Even in the case in which several are exactly alike in colours, other differences are usually perceptible to those who observe them closely. They will differ in size, in the proportions of their bodies and limbs, in the length and texture of their hairy covering, and notably in their disposition. They each possess, too, an individual countenance almost as varied when closely studied as that of a human being. (Wallace: Darwinism, p. 85.)

I suppose it is necessary to point out that these statements are not mere opinions but are based on exact observation and measurement. If Dr. Mercier will read "Domesticated Animals of the British Islands" by Professor Low, "Animals and Plants" by Darwin, and "Darwinism" (especially Chapters III. and IV.) by Wallace, he will not again be in such a hurry in denying the fact of variation or parading his acquaintance with the *fallacia a dicto secundum quid et dictum simpliciter*. Will Dr. Mercier tell us, or is he able to tell us, what cause or causes of variation I have ignored?

With regard to the Fallacy of the Consequent or *non sequitur* as well as the following one, the *petitio principii*, or begging the question, Dr. Mercier exhibits an acquaintance with the subject of heredity as incredible as his insistence on the transmission of acquired traits. As evolution can only proceed by one or both of two methods, by the transmission of inborn traits or of acquired traits from parent to offspring and by their accumulation in succeeding

generations, it is necessary in order to understand them to define two terms, the loose use of which has led Dr. Mercier into his amazing contribution. A *variation* or an *inborn* trait may be defined as one which arises in an organism in consequence of changes previously produced in the germ cell or cells from which the organism sprang; whereas an *acquired* trait may be defined as one arising in the body cells from the action of the environment. It is thus evident that the difference between the two is essentially one of origin. Variations are known to be transmissible; for example, I recently saw a child with a supernumerary little finger on each hand; the father, grandfather, and great-grandfather were each born with the same peculiarity. I know another family where each member has the second and third toes on each foot in their whole extent webbed and this is known to have been the case in the two preceding generations on the mother's side. Many, however, like Dr. Mercier, believe that acquired traits are also transmissible; but even supposing that they were so it would not account for all variations; for example, the supernumerary digits and webbed toes. Now, though a variation always implies a difference between an offspring and its parent an acquired trait does not, for they may both acquire the same thing. Admitting, however, for the sake of argument, that acquired traits are transmissible, the trait transmitted would produce in the germ cell not another acquirement but a variation, since the change would be in the germ cells. There is one possible way in which an acquirement could be transmitted and that is when a mother transmitted to her fœtus the acquirement which she had acquired and that same trait arose in it. If, however, the acquirement is again transmitted it would be as a variation. It will also be obvious that males can only transmit variations, or, rather, can only transmit an acquirement as a variation. Remembering the above definitions, would Dr. Mercier now tell us where in the *petitio principii* I have taken the conclusion as one of the premisses. I am quite prepared to agree with Dr. Mercier "that very little of the logical faculty is sufficient for those who conduct the affairs of a nation." I also agree "that still less is needed to conduct a discussion on a scientific subject"; but it would seem that immeasurably less is needed for those who, on logical grounds, take exception to the reasoning of those who are parties to that discussion.

It must be remembered that neither Dr. G. Archdall Reid nor myself, nor anyone belonging to the Reid school, has ever alleged that parental drinking gives rise to filial drinking. What has been said is this, If the contention of the neo-Lamarckian school is right we will show what the logical conclusion of that contention must be. If a man by reason of his drinking transmits to his son a desire for drink it can only be by way of a variation, and variations, as we know, are transmissible and tend to increase generation after generation. Let us postulate, however, for the sake of argument a man in primitive times with no desire for alcohol. If he now drinks, if the neo-Lamarckian doctrine is correct, he will transmit the desire for alcohol that he has acquired to his son and this, as we have seen, can only be by way of a variation. The son would make a different start in life from the parent, for he would begin with a desire for alcohol, whereas the father did not. If this son now has a son he will transmit to him the desire for alcohol which he himself acquired from his parent, but not only that for the grandson will have an increase of desire, for he has the grandparent's desire plus that due to his own father's drinking, and this increase of desire going on generation after generation would lead to an enormous capacity to enjoy alcohol. Alcohol, as we know from the researches of Dr. J. J. Ridge among others, causes more deaths than any other agent and thus, if the neo-Lamarckian contention is driven to its logical conclusion, the race must become so drunken as at last to lead to its extinction. Instead, however, of postulating a man with no desire for alcohol we begin, as we know all men have begun, so far as we have any information, with a fierce desire for it, and if now to this fierce desire there be added an increase of desire due to parental drinking, the extinction of the race would be swifter in coming if not more certain. It is not, I suppose, necessary to labour the question with regard to filial insanity due to parental drinking, for the same reasoning is to be employed. Here again it would be a variation, &c. Dr. Mercier by his *non sequitur* alleges that the above reasoning is so loose that there is no cogency in it, for, as he says, I have neglected some counteracting circumstances. Will Dr. Mercier tell us what these circumstances are? He must know them when he is able to say I have neglected them. Many, many beside myself, pained at the terrible cruelty of nature, would be glad of any way of escape from this horrible position into which we have been driven. Must we call to him in vain; he who knows; or must we, if no answer is given, conclude that no answer is possible?

With regard to the giraffe's neck and Dr. Mercier's "parity of reasoning," if it be true, as Dr. Mercier holds it to be true, that acquired traits are transmissible and that the long neck of the giraffe is due to former giraffes stretching their necks, I agree with Dr. Reid in "seeing no reason," if Dr. Mercier demands it, "why their necks should not grow as high as the cross of St. Paul's." If, however, the giraffe's long neck be not due to stretching and its accumulation and transmission, but is due to the Darwinian doctrine of selection, there is no reason why it should be longer than it is. It must be kept in mind that there is as great or greater tendency to retrogression as to evolution; also that evolution is not always an extension of the previous evolution: it may be reversed or it may be divergent; indeed, "evolution and progress are not synonymous terms. The survival of the fittest is not always a survival of the best or of the more highly organised. The environment is sometimes such that increase of fitness means degeneration of type and the animal and vegetable world show many instances of degeneration. One brilliant instance is that which has preserved the clue to the remote ancestry of the vertebrate type. The molluscoid ascidian rooted poly-like on the sea beach in shallow water has an embryonic history which shows that its ancestors had once seen better days, when they darted to and fro fish-like through the waves with the prophecy of a vertebrate skeleton within them. This is a marked case of degeneration. More often survival of the fittest simply preserves the type unchanged through long periods of time. But now and then under favourable circumstances it raises the type. At all events, whenever the type is raised it is through survival of the fittest, implying destruction of all save the fittest.[1]"

With regard to the calf muscles and gravitation Dr. Reid has so convincingly and so ruthlessly brushed Dr. Mercier's objections aside as to leave nothing for any other one to say. And now as to the *ignoratio elenchi* or irrelevant conclusion. The statement was made that man's religious systems kept many sober. I replied, exactly so, and they also keep many celibate as well as making them barbarians at the same time. If Dr. Mercier can find a flaw in the reasoning I make him a present of it, *tra la*.

As Dr. Mercier has now had his fling, and as we shall all in the future admit his logical abilities, may I ask him to come to facts? If he can show the unreasonableness, the untenableness, of the position of the Reid school; if he can prove his own position and that of the school to which he belongs, he will be doing a greater service than he perhaps imagines. It was said at the Swansea meeting that the public was looking to the medical profession for guidance in this "horrible fatalism," as Dr. A. T. Schofield described it. How far that is true I do not know, but I do know that it would be more sensible to controvert the doctrines than simply to hold them up to execration.—I am, Sirs, yours faithfully,

Liverpool, Sept. 3rd, 1903. C. R. NIVEN.

To the Editors of THE LANCET.

SIRS,—Curious coincidences sometimes occur. Yesterday (Sunday) morning I read through with great care the recent correspondence on alcoholism and disease and heredity. In the evening, at a church I had never before been in, the preacher took his text from the words, "The leprosy of Naaman shall cleave unto thee *and thy seed for ever*." Probably, I should think, to the surprise of his hearers, the preacher entered into the question of heredity and disease and the transmission of acquired characters, and did so in such a manner as showed that he had carefully studied the subject. I merely want to point out one aspect of the question which seemed to strike him. He stated that he had frequently come across cases of vice of one kind or another in which the only appeal which seemed to have any effect was the one which begged the sinner "for God's sake, if you care nothing for yourself, think of your children." Referring to the modern teaching on the matter, he said that if it were definitely proved that there was no such thing as

[1] Fiske: Through Nature to God, p. 81.

transmission of disease or alcoholism from parent to offspring one of the most powerful incentives to health and sobriety would be removed.

I think it is of interest sometimes to note how scientific and medical questions affect the thoughtful men of other professions, especially the clergy, and therefore I mention this. I am, Sirs, yours faithfully,

Sept. 7th, 1903. M.D. EDIN.

To the Editors of THE LANCET.

SIRS,—May I take from your columns an illustration of the importance of a study of the problems of heredity to the medical profession? In a review [1] of a work on consumption it is written: "He (the author) quotes the statistics of Dr. J. Edward Squire which show that the difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents is very small. Dr. Latham remarks that these figures are remarkable, as the children of tuberculous parents who are the victims of active disease must in most cases, unless the necessary precautions are taken, be more exposed to the risk of infection. The statistics would appear to suggest, he says, that the children of tuberculous parents possess some natural immunity to the disease, for otherwise the percentage of children who develop tuberculosis should be much greater when the parents suffer from the disease than when they do not." I beg leave to say that in the light of a study of heredity these statistics are in no way remarkable, nor is there need for the curiously unscientific "shot" offered in explanation—unless, indeed, one is prepared to deny natural selection. Here in this country of Galileo and Bruno there are those who know not the Copernican theory—shall Darwin escape? Permit me to justify my statement as briefly as possible. Once more we start from the fact that races are resistant to a disease strictly in proportion to their past experience of it. Tuberculosis by weeding out the weak against it during "unnumbered generations" has left in England a race comparatively resistant to the disease. No immunity is *acquired* against tuberculosis by the individual, but as a race we can flourish in conditions which would decimate another race to which phthisis was a new disease. Until quite recently at least, the stringency of phthisis selection has constantly grown, but has been met by as steady a growth of race resistance through disease selection. The weak being eliminated, the strong against tuberculosis have survived and propagated the race. The factors have not, of course, worked equally throughout the country; in the Scots Highlands, for instance, the rate has for obvious reasons been slower, but the general effect is that we have lived, in regard to phthisis, under conditions which would have been impossible to our remote ancestors.

Contrast this view of our present evolution with the tragic story of the introduction of phthisis into the New World amongst races which had no knowledge of it and had undergone no evolution against it. They were suddenly invaded by races who suffered from the disease but had a high resisting power, and who carried with them the conditions of life prevailing in their own land. There was scarcely time for evolution. The bacillus revelled in the virgin soil—whole races were wiped out. Practically every individual attacked was found of low resisting power and succumbed. In England, then, the great majority of people are immune to tuberculosis nowadays under practically all conditions. They may live crowded in dark, ill-ventilated rookeries; their daily exercise may be only a ride in a subterranean railway to and from a sedentary occupation; they may be in ill-health, associate with phthisical invalids, be drunken and depraved, yet only a small minority contract the disease—at least in a diagnosable form. Those who do contract it when weakened by other diseases or depressed by some powerful cause tend to recover, and to-day such cases stand to the credit of many a sanatorium.

In the light, then, of analogy and of a study of the history of disease as it affects races the British islanders are progressing rapidly through stringent selection to a resisting power which might make them completely immune to tuberculosis and lead to the dying out of the bacillus from their midst—a slow and sorrowful process, but nature's, and therefore sure. But man has checked nature. Man himself has begun to relax the stringency of the selection. By means of improved and constantly improving sanitation, active "preventive treatment" of those who spring from tuberculous parents, and by admirable curative measures employed on those whose resisting powers are not too low, the stringency abates and many of the weak who would formerly have perished now survive. And here biology supplies us with an illuminating fact—that cessation of selection is invariably followed by reversion to the ancestral type. Therefore, although man's well-meant interference is beyond doubt a benefit to the individual, it is providing for succeeding generations an increasingly lower power of resistance against the disease. It is unnecessary to follow here with speculations as to the remedy. On the one hand there appears the hope—a vain one to some thinkers—of the absolute banishment of the tubercle bacillus through perfect sanitation. On the other hand stands artificial selection—abstention from procreation on the part of those with weak resistance, with the "tuberculous constitution"—to other thinkers a wicked suggestion. With these data, imperfectly given I fear, it is possible to arrive at a solution of the problem which Dr. Latham finds so puzzling. "The difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents is very small." The child of the tuberculous parent contracts the disease because he inherits a weak resisting power and is often placed in an environment favourable to the development of the disease. Possibly the numbers of these children are reduced somewhat by the carrying out of "preventive measures." But, on the other hand, the ranks of the children born of "non-tuberculous" parents who contract the disease are greatly increased owing to the fact that man's interference is raising an army of *apparently* non-tuberculous parents—i.e., of persons who have not suffered from the disease but who, nevertheless, possess and hand on weak powers of resistance. Thus, then, while a few generations ago "tuberculous parents" meant as now only those who had themselves suffered from the disease, "non-tuberculous parents" meant only those who had escaped the disease solely through their high resisting powers. To-day the "non-tuberculous" parents include also parents who have escaped the disease through the sanitary and other efforts of man and are really of tuberculous stock. Obviously a few generations ago statistics should have proved a very great difference in the incidence of the disease in the offspring of tuberculous and non-tuberculous parents, and obviously again the enrolment of the "apparently" non-tuberculous amongst the truly non-tuberculous parents has greatly reduced that difference. Therefore Dr. Squire's figures are neither so surprising nor so inexplicable as they appear at first sight. I think this explanation is more in accordance with the facts of natural selection and of the natural history of disease than the somewhat topsy-turvy one that "the children of tuberculous parents possess some natural immunity to the disease"; certainly it seems to me in accordance with the few facts known concerning heredity.

May I, in conclusion, ask how long the facts of heredity are to continue neglected by those who have the ordering of our medical curriculum? Hydropathy and hypnotism, the long despised, are now recognised; but (is the letter "H" unfortunate?) heredity, while the mere term is used in text-books as a cloak to ignorance, is passed by in contempt as a science. I cannot think this attitude is a credit to the profession, and certainly it results in a dead loss to our knowledge—a serious loss to our patients. Not long ago a gentleman possessing the qualifications of M.D. Lond., F.R.C.P. remarked to me, "Heredity! Lord, I never studied *that!*" And only a few weeks ago another gentleman in public debate condemned Dr. Archdall Reid's well-known views as the revival of an old fatalistic theory, altogether shocking! And now we have a text-book on Consumption coming before the public and advancing this "suggestion" (suggestions in modern "science" speedily become beliefs) without, as far as I can discover from my imperfect study of the subject, any ground whatever amongst the facts of inheritance. No body of men stands in so favourable a position for adding to the facts of inheritance as the medical profession; and yet we are permitted to receive our degrees and qualifications without a smattering of the elements of the science. It is a subject on which no one can at present be dogmatic and on safe ground at the same time—the views I have given are, of course, open to correction and, it is unnecessary to state, are not original—and yet in the text-book, in the lecture-room, in the sectional meeting, in the consulting-room even, and the bedroom dogmatism of the barest description, in the absence of knowledge, is rampant. There must be many who, like myself,

[1] THE LANCET, August 22nd, 1903, p. 532.

regret the want of teaching on the subject in university days, who like myself dislike our present ignorance and look forward to more enlightened days. To such, and especially to those who are in touch with our teachers and the directors of our curricula, I appeal to put an end to the present unfortunate state of affairs.

I am, Sirs, yours faithfully,

Florence, Italy, August 25th, 1903. H. LAING GORDON.

To the Editors of THE LANCET.

SIRS,—Before this discussion dies down and the dust "is lightly laid again" it would be interesting to know whether Dr. G. Archdall Reid has any practical suggestion whatever to make concerning the prevention of drunkenness.

I am, Sirs, yours faithfully,

Mossley, Sept. 1st, 1903. SIDNEY VINES.

SURRA IN THE PHILIPPINE ISLANDS.

To the Editors of THE LANCET.

SIRS,—With reference to your annotation on p. 553 of THE LANCET of August 22nd concerning the occurrence of the horse trypanosoma in rats and the communication of surra to horses by insects, &c., in Manila, I would invite reference to the valuable reports by Dr. Alfred Lingard, imperial bacteriologist of India, who worked out with great thoroughness the conditions of the surra disease in the Bombay Presidency. The connexion of rats and insects with the carriage of the infection was fully dealt with. The volumes containing Dr. Lingard's reports can doubtless be obtained through the India Office.

I am, Sirs, yours faithfully,

EDWARD C. BUCK,
Late Secretary, Government of India Agricultural Department.

Sept. 3rd, 1903.

THE CHRISTIAN HOSPITAL OF CHICAGO.

To the Editors of THE LANCET.

SIRS,—I desire to call your attention to the annotation concerning the "Christian Hospital" of Chicago on p. 416 of THE LANCET of August 8th, in which I feel I have been unjustly treated. I am somewhat surprised to find in the issue of a journal as late as August 8th an article giving credence to the statement that my name was used with my permission in connexion with this nefarious swindle. The affair occurred on May 12th and almost every American journal of prominence has treated the matter editorially and in communications, showing the outrage that has been perpetrated on me. I inclose a circular letter and clippings from the daily papers of Chicago which also show the steps which have been taken to secure the conviction of these criminals. I hope that you will make this matter clear in as forceful a manner as your annotation of the 8th August condemns me. I feel that you would not knowingly do me an injustice and I am sure that when you understand the details you will realise that my position has not been a pleasant one, as something like 80,000 of these circulars were sent out to the members of the American medical profession. The publicity which was given them by the lay and medical press aborted the scheme as a money-making project; therefore the perpetrators, in the hope of securing leniency in court, have returned the money to all who purchased their certificates.

I would say, for your further information, that the matter of the division of fees was taken up by the Chicago Medical Society and condemned before it was taken up by the American Medical Association, and I was one of the strong factors in securing the ruling against the division of fees in that society and in bringing the matter before the association to have it included in the principles of medical ethics. It seems to me that if you had seen the original circulars you could not help but recognise that it was not only fraudulent to the profession but an outrage on my name. The perpetrators of the scheme are now held to the grand jury and we hope to succeed in convicting them at the October session. I would refer you to articles as follows: *Journal of the American Medical Association*, May 23rd, p. 1443, and June 6th, pp. 1586 and 1591; *Medical Record*, June 13th, p. 946; *Medical Century*, August 1st, p. 252; *Texas Medical News*, July, p. 467; *American Medicine*, July 18th, p. 85; or to any other reputable American journal that may be at your disposal.

Very truly yours,

Chicago, August 29th, 1903. J. B. MURPHY.

*** We had not any idea who the medical man in question was, as no names were mentioned to us. We were perfectly aware that the Christian Hospital was an unprofessional institution, if nothing worse, and alluded to it in terms that showed our opinion of it. The extracts from Chicago papers sent us by Dr. J. B. Murphy show that his name has been used in a monstrous manner by unprincipled persons, against whom he has invoked the protection of the law. He has our most sincere sympathy. We did not see the original circulars.—ED. L.

INFANTILE AND BOVINE TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—Dr. Nathan Raw's interesting paper is a valuable contribution to the subject of infantile and bovine tuberculosis as regards his own observations and experience. His references, however, to the Registrar-General's statistics are not quite up to date. If Dr. Raw had examined the more recent figures of the Registrar-General he would have found that although these are opposed to the often quoted statement of the late Sir Richard Thorne they do in effect offer a confirmation of his main contention that bovine tuberculosis is the principal cause of abdominal tuberculosis in children. In England and Wales the deaths from tabes mesenterica per 1,000,000 of the population increased up to 1880 but since then have steadily diminished from 290 in the five years 1881 to 1885 to 196 in the period 1898 to 1900, the last quinquennium showing two-thirds of the whole decrease. The annual summary of the Registrar-General for 1902 shows that in London the deaths from tuberculous peritonitis and tabes mesenterica have diminished by one-half since 1892—viz., from 1298 in 1892 to 661 in 1902. During the same period there has been a diminution, but a much smaller one, in the deaths from tuberculous meningitis. The latter seem to follow very closely the deaths from pulmonary tuberculosis, increasing and diminishing as the latter rise and fall. I am informed by the medical officer of the infirmary of Woolwich union and other local medical practitioners that they have observed a very great reduction in abdominal tuberculosis in children during recent years. We see thus that whatever was the case in former years tuberculous peritonitis is now diminishing much more rapidly than pulmonary tuberculosis, especially in London. Surely this is what would be expected on the theory that bovine tuberculosis was the chief source of abdominal tuberculosis in children.

Great efforts have been made by many sanitary authorities in recent years to obtain a milk-supply free from tubercle bacilli and cows with tuberculous udders have been almost eliminated from London cowsheds by means of the County Council's efforts. In the borough of Woolwich and probably in many other towns milk coming from the country is now comparatively free from tubercle bacilli. I do not know what are the figures that Dr. Raw refers to as the percentage of cows in London cowsheds infected with tubercle, but they are opposed to the report of the medical officer of health. This report for 1901 shows that out of over 4000 cows in these sheds on the last inspection only seven were infected with, or were suspected to have, tuberculous disease of the udder and the sale of milk from the seven suspected cows was prohibited. No doubt a large number of cases of tabes mesenterica are not really tuberculosis, but I know of no reason to suppose that anything has happened during the last ten years, 1892-1902, seriously to affect the proportion of correct to incorrect medical diagnosis in this respect. I think, therefore, that one is justified in saying that the marked decrease in the total deaths from abdominal tuberculosis and tabes mesenterica indicates a corresponding diminution in abdominal tuberculosis and that this decrease is probably chiefly due to the elimination of milch cows with tuberculous udders and partly, no doubt, to the increasing practice of sterilising milk before consumption. At the present time I find that direct infection (usually from parents) in this borough is the most frequent source of all forms of tuberculosis in children.

I am, Sirs, yours faithfully,

Woolwich, Sept. 1st, 1903. SIDNEY DAVIES.

OBSERVATIONS ON MASTICATION.

To the Editors of THE LANCET.

SIRS,—In your issue of August 29th "M.D." asks on what observations and experiments I found my statements (1) that tooth powders should not be used as a matter of routine, and (2) that antiseptic tooth powders and mouth washes should be scrupulously avoided, inasmuch as many of the bacteria in the mouth play a useful part as scavengers.

1. The fact that some of the best natural sets of teeth I have seen have never felt the touch of the tooth brush suggests that the latter may injure the teeth by removing the protective film which normally coats them, as well as by injuring the gums, and if such is the case even when the teeth are brushed with plain water, how much more so must it be when they are burnished with powders whereby every vestige of protective covering is effectually removed and the naked surfaces of the teeth laid bare to the attack of decalcifying acids. I can, moreover, scarcely doubt from personal observation—and Dr. Sim Wallace bears me out in this—that the brushing of the teeth with powders tends to cause recession of the gums, "abrasion," "erosion," and secondary caries, and it is probably such considerations as these which have led Mr. Tomes in the last edition of his "Dental Surgery" (p. 253) to say that "in many respects tooth soaps are to be preferred to tooth powders."

2. Accumulating evidence goes to show that a self-cleansing action tends to occur in all the cavities of the human body lined by mucous membrane. This has been definitely proved in the case of the vagina: at birth this canal is free from bacteria, but very soon after several varieties—constituting the normal vaginal flora—take up their abode there. Now it is found that if bacteria are introduced into the vagina before the normal flora is established they persist much longer than if introduced after its establishment, the normal acidophile bacteria of the vagina being inimical to the growth of other bacteria. The nasal cavity is thought by some to possess similar bactericidal properties, and W. S. Miller has recently brought forward evidence suggesting that the oral cavity is similarly endowed.[1] In THE LANCET of August 29th, p. 621, reference is made to his contention that the struggle for existence among the mouth bacteria performs an important rôle in ridding the mouth of injurious micro-organisms. This view is founded on a series of carefully devised experiments, of which the following is one. The mouth was thoroughly rinsed with a culture of bacillus prodigiosus; immediately after a loop of saliva was found to contain 97,600 of the bacteria; after one hour it contained only 1220; after two hours, 127; after three hours, 17; after six hours, 0. The bacillus prodigiosus was thus driven to the wall in the struggle with the normal flora of the mouth, and Miller suggests that the same may be true of such pathogenic bacteria as those of tubercle, cholera, and typhus fever.

Such considerations as these should surely make us pause before using antiseptic tooth powders and mouth washes, lest we be levelling our guns, not merely at the enemy, but at our own trusty warriors.

I am, Sirs, yours faithfully,

Wimpole-street, August 30th, 1903. HARRY CAMPBELL.

To the Editors of THE LANCET.

SIRS,—Dr. H. Campbell, in his recent paper in THE LANCET on Mastication, makes a statement in respect to the use in the mouth of antiseptic tooth powders and mouth washes which to most dental surgeons who have studied the subject is quite contrary to belief, acknowledged practice, and observation. Dr. Campbell asserts that antiseptic powders and mouth washes should be scrupulously avoided, since many bacteria play a useful part as scavengers. No doubt some of the oral organisms subserve this purpose, but still there are always plenty of them left to carry on this work, even although antiseptic mouth washes and tooth powders are used daily. One can always find in such mouths on the oral mucous membrane, in fissures, on and between the teeth, numerous micro-organisms, scavengers and others, although, perhaps, not to the same extent as would be found in the untreated mouth, still numerous enough to get a free culture from or slide preparation. The rapidity with which oral organisms propagate themselves in the intervals between tooth brushing speedily restores the balance of nature in the mouth. A proper tooth powder should possess antiseptic and anti-acid properties which act beneficially, one in counteracting or modifying acid bacterial products, the other by destroying or modifying the microbes themselves—both processes helping to retard dental caries in the mouth, and is a means to an end in keeping the oral cavity in as healthy a condition as possible.

I am, Sirs, yours faithfully,

Sept. 8th, 1903. G. W. W.

[1] Dental Cosmos, February, 1903.

THE TREATMENT OF GOITRE BY THE USE OF DISTILLED OR RAIN WATER.

To the Editors of THE LANCET.

SIRS,—With regard to Dr. T. Carter Booth's letter in THE LANCET of August 29th, p. 632, there is no doubt that boiling destroys the goitrous principle in water. This has also been known a long time, although perhaps not in this country. Another fact known about goitrigenous water is that the further it flows from its source the less dangerous does it become. Both these facts rather favour the bacillary theory of goitre production. In St. Lager's book, which was published in 1867 (p. 193), occurs the following passage which I translate: "Bakewell relates a story of one of his compatriots who resided at Geneva, that the latter noticing his children becoming goitrous took the advice of a medical man and had their drinking water boiled. The goitres disappeared. Later, however, when the family went to live at Lausanne the servants neglected this precaution and the goitres again appeared, but again disappeared when only boiled water was imbibed." I do not think that goitre is due to ammonia salts or free ammonia, as many goitrigenous waters are far removed from such pollution. It is a fact, however, I think, that the diminution of goitre in country districts has in many instances coincided with the disappearance of surface wells as sources of water-supply. Lustig and Carle declare that they never found a goitrigenous water which did not contain nitrous acid. This substance, we know, is produced from ammonia by the action of soil germs—the so-called nitrifying bacteria; and it is, of course, possible that in these bacteria, or in others allied to them, we may have a cause of endemic goitre. The occurrence of goitre in epidemics is also favourable to a bacillary theory.

I am, Sirs, yours faithfully,

LOUIS E. STEVENSON.

Temple Sowerby, Penrith, August 29th, 1903.

A PROBLEM IN MEDICO-LEGAL PSYCHOLOGY.

To the Editors of THE LANCET.

SIRS,—My attention has been called to the letters on the above subject and to the article by Mr. J. S. Mackintosh which has given rise to the correspondence.[1] As the brother of one of the clergymen, who was with him the instant after he committed the fatal act and had been continuously with him for the day previous, I am able to form some opinion as to the state of mind which led to his untimely end. In his case, some seven weeks previous to his wife's death, an attempt was made by burglars to enter his house, and I ascertain that as much of the church plate was often in his care he purchased a revolver as a means of causing an alarm should such attempt be made again. The weapon was placed on the safe near his bedside. A quarter of an hour before his death I left him calm and resigned. He then went into the room where his wife's body lay, and on returning to his own room must, I feel sure, have caught sight of the revolver, written the short last message that I found, and in that momentary aberration of mind ended his life. A week afterwards comes the suicide of which Mr. Mackintosh gives so carefully thought-out an account. With him I cannot but fully agree that the suggestion was given to this poor man by my brother's death shortly before, while his mind was aberrant owing to the concussion of the bicycle accident.

But *this* is the point upon which I feel strongly and upon which I earnestly desire your opinion. What useful end can be served by the publication in the general press of full details of such terrible tragedies? Apart from the pain they inflict on all concerned, who have to face the staring

[1] THE LANCET, August 15th, 1903, p. 451.

poster and the kind but very painful sympathy of those they afterwards meet as I have daily now to do with almost every patient whom I see—each paper one buys, is filled with needless accounts of such tragedies, re-opening the wound of those who have lived in them, and inciting persons of unstable mind to follow the example of those whose end these journals depict in such cruel detail. Take the case of the death of General Hector Macdonald. Many suicides were put down to the detailed reports of his end. It appears to me that the question fully enters into the domain of preventive medicine. We do our utmost to guard against *physical* infection, but I am convinced that there also exists a *psychical* infection, and that there are many men and women who are peculiarly susceptible to *psychic* influences, with highly nervous, uncontrolled mental faculties, held in check by only too slender reins and too uncertain a hand—too easily do they imitate, when sorrow, misfortune, or disappointment deprives them of mental balance, the loss of control and consequent disaster which are so graphically daily portrayed to them. Hundreds of such men and women exist in our communities who, while their sensibilities are shocked, are still morbidly drawn to these harrowing details—read them they must though they loathe them—till their persistent reiteration upsets their own unstable balance.

I am, Sirs, yours faithfully,

August 27th, 1903. R. S. P.

*** We agree with our correspondent that a certain sort of newspaper does great pain and harm by its disregard of private feelings and its determination to publish horrible details.—ED. L.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Grievances of the Indian Medical Service.—A Poisons Bill for India.—The Military Station of Mandalay.—The Sanitary Neglect of Madras.—The Increasing Plague Mortality.—The Liquor of Native Grog Shops.

NOW that the grievances of the Indian Medical Service have been brought before Parliament it may be well to mention the complaints which have grown up during recent years. They are all probably quite well known to your readers. The chief are slowness of promotion and consequent age retirement before full pension has been earned, alteration of retirement and pension rules, want of increase of pay which has been given to the Royal Army Medical Corps, and the selection of principal medical officer for India alternately from the Indian Medical Service and the Army Medical Department; while the civil branch complains that honours are not given for purely professional distinction and asks that the rules limiting fees should be abolished. It is further suggested that the Director-General should have the rank of lieutenant-general and a seat on the Viceroy's council with direct access to the Viceroy and that the administrative medical officers should have seats on the provincial councils. Those who know India best will admit that the complaints are justified and that some at least of the requests for further recognition would be conducive to the public interests.

A Poisons Bill for India has at last been considered by the Supreme Government. The only restrictions with regard to the sale of poisons hitherto attempted are contained in an old Bombay Act of 1866 which owing to defects has produced little effect, and in an Act of the North-western Provinces and Oudh Municipalities which is also virtually inoperative. Poisons of all kinds can be obtained easily in India and are used without let or hindrance. Arsenic is the favourite medium for murder and at last the Government of India has been aroused to the situation. It is an extraordinary anomaly that a deadly poison such as arsenic, which is without taste or smell, which produces effects very similar to those of cholera, and which is known to be the agent most frequently employed for homicidal purposes, should be procurable in unlimited quantities in every part of India. The following is the official and extraordinary reason for the absence of previous legislation—viz., "that since plants from which vegetable poisons can be extracted grow all over the country, and are readily accessible, any restriction on the sale and possession of mineral poisons might result in inducing criminals to have recourse to the more subtle and less easily detected vegetable poisons, which could in no case be placed beyond their reach." The present Bill provides for the control of the sale of poisons and it also places the importation of white arsenic under licence, but unfortunately the measure will be permissive to the local Governments.

The unhealthy military station of Mandalay is apparently at last going to be almost abandoned and the garrison will probably be reduced to two companies of a British regiment and half a battalion of a native regiment. The reports of the sanitary commissioner have shown year after year the dangers of this station and the serious amount of sickness.

The sanitation of the city of Madras comes up for comment regularly and the annual reports only serve to show the neglect of this city as compared with Calcutta and Bombay. It will bear repeating that Madras continues to be supplied with unfiltered water which is almost regularly declared to be suspicious; that there are no food inspectors and practically no food inspection, so that vendors can adulterate as much as they please so long as they do not add poisonous materials which would render them liable to prosecution under the Indian Penal Code; and that there are no veterinary inspector and no *dhobikhana*.

The plague mortality throughout India continues to rise steadily. Last week it increased from 3342 to 3613. In the Bombay Presidency the deaths have increased from 2727 to 2838, in the Mysore State from 279 to 331, in Central India from 65 to 131, and in the Hyderabad State from 27 to 80. The reappearance of plague in regular epidemic form is now past any question in Central India, as both Mhow and Indore have been suffering severely during the past fortnight.

The temperance party in Calcutta have entered on a new and striking departure. Broadly speaking, this consists in an investigation into the present conditions under which the liquor traffic is conducted, but one of their workers has gone scientifically into the question of the quality of liquor sold in Calcutta in native grog shops. Samples from different places have been analysed and many deleterious constituents have been discovered, but the chief inquiry has shown the alarming proportions of fusel oil which nearly all the samples contained. It appears that in Belgium a maximum has been fixed of 200 grains per gallon of proof spirit, above which liquor was not to be sold. In Calcutta, however, samples were found to contain up to 492 grains per gallon and samples from Assam up to even 963 grains per gallon. In well-made Scotch or Irish whisky the fusel oil did not exceed 60 grains per gallon. At present the supervision of the Government distillery only concerns the quantity of alcohol produced, but as the liquor sold to mill workers and coolies contains so much poisonous material it is suggested that the Government, obtaining as it does a huge revenue through alcoholic liquors, should exercise control upon the quality of the liquor sold. At a public meeting recently held the increase of alcoholic drinking amongst Hindus and Mahomedans was referred to. It was further suggested that the import of inferior and harmful spirits from Europe should be interdicted.

August 21st.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The Water-supply of Birmingham.

ARRANGEMENTS are now approaching a conclusion for the supply of the city with water from Wales. The great reservoir at Frankley is now quite complete and is being temporarily used as a store for water from the existing pumping stations. This reservoir is one of the largest in the kingdom, having a water area of 25 acres and a holding capacity of 200,000,000 gallons. It is formed in a natural hollow in the side of the hill known, from the wood on its summit, as Frankley Beeches. The chord of the arc of a circle formed by the hollow consists of a huge dam about a quarter of a mile in length, composed of the wall of the reservoir strengthened by an embankment about 37 feet in height. The wall of the reservoir is an internal layer of blue bricks, behind which is a layer of asphalt. Behind this again is the main wall composed of huge concrete blocks, divided from one another by sheets of brown paper, placed there to prevent the settling of any block or its expansion or shrinkage owing to atmospheric effects, when it might displace its neighbours. The concrete wall is backed by a succession of blue brick arches. The wall

is about 30 feet thick at its base and about 30 inches at its summit. In order to insure the safety of the dam the reservoir is divided into two halves by a wall seven feet in thickness, placed perpendicularly to it. A large Atlantic liner might be moored on either side of this wall. Eight sluice gates near the dam allow the two halves to be used independently or together. The flow of the water from the Elan Valley to the reservoir will be at the rate of two feet per second and it will take a given mass of water two days to complete its journey. When the water has reached a height of 30 feet in the reservoir an electric bell is set ringing in the pumping station and a communication is sent to the Elan Valley to cut off the water-supply. There are several hundred valves between the Elan Valley and Frankley, so that, in the event of the reservoir becoming over-full, water can easily be diverted into some of the rivers on the way. 14 filter-beds, varying from 150 to 220 feet square in size, have been provided to rid the water of any substances which may be in suspension and also to deprive it of some of its softness. These consist of a layer of sand over layers of gravel of varying size. The present demands of the city are such that it will take about 100 days to empty one side of the reservoir and most of the work of supply will be effected by the force of gravity. It will be necessary, however, to supply about one-eighth of the city by pumping. Two small reservoirs have been provided—one on the hill at Northfield and one at Warley. To these the water will be raised by pumping engines, of which three have been provided, one for use in emergencies. The largest of these is of 76 horse-power. The lifting power of these engines is about 1000 gallons of water per minute.

Suicides in Birmingham.

After holding inquests on two cases of suicide recently the coroner took the opportunity of referring to the number of cases of this kind which had occurred during the year. The number had been very much in excess of the average, which for the past six years in the city had been 48 per annum. Reckoning the two cases on which he had held inquests that day there had already been 45 cases this year and there was about one-third of the year yet to come. 48 per annum was four per month. In January there were four cases and the same number in each of the two following months. In April there were seven, in May four, in June eight, in July seven, and in August—up to the date at which these observations were made, for there has been at least one case since—seven.

Housing of the Poor.

At the forthcoming Worcester Diocesan Conference, which will be held in Birmingham during September, the subject of the housing of the poor will form one of the topics of discussion, when Dr. A. H. Carter will deal with the matter from the urban point of view and the following motion will be proposed:

That this conference recognises the urgency of the housing problem both in town and country and desires to impress upon churchmen the importance of active measures for the amelioration of present conditions by improved legislation, by more vigorous public administration, by the encouragement of cooperative efforts, and above all by energetic personal service.

Small-pox Hospital for West Bromwich.

On August 26th Dr. R. J. Reece held an inquiry in the council chamber at the town hall, West Bromwich, on behalf of the Local Government Board, with reference to an application made by the West Bromwich town council for sanction to borrow £2300 for the erection of a small-pox hospital at Friar Park. The town clerk explained that there were no houses within a radius of a quarter of a mile from the centre of the site upon which it was proposed to build the hospital. The borough surveyor gave particulars of the scheme and produced the plans. He also pointed out that the site was in the centre of the sewage farm. The hospital would provide accommodation for 20 patients. There was no opposition.

Midwives Act.

In connexion with this Act the following resolution has been passed at a special meeting of the East Birmingham ward of the Birmingham and District General Practitioners' Union.

That the members of this ward agree not to attend midwives' cases at a less fee than one guinea; that the midwife concerned in the case be held responsible for obtaining the fee; that in any case where the fee has not been obtained the name of the midwife shall be reported to the ward.

August 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

The Housing Question.

MANCHESTER has for years been closing its "back-to-back" houses. In Leeds it is said that they are increasing. If so it is to be regretted, for it was found some years ago in Salford, where they are still very numerous, that the death-rate in these houses was 38 per 1000, as against 27 per 1000 for the whole of the borough, while consumption, diphtheria, and zymotic diseases specially favoured them and the general health of the occupants was low. Salford recently decided to close 400 unhealthy dwellings. Some of the "back-to-back" houses may be made into "through" houses and may perhaps have their evil points remedied, but the majority are said to be too bad for repair. It has been suggested that the recent fatal fall of a house in Ancoats may have roused public opinion and disturbed the slumbers of the municipal conscience of Salford. If so the pitiful fate of the two poor little slum children may not have been in vain. This, however, is scarcely fair to the Salford authorities, for, while they have been closing unhealthy property, 400 houses have already been built, and a model lodging-house. Also another housing scheme, to cost £56,000, is being proceeded with, while others are in contemplation. In Manchester a good deal has been paid in compensation—whether too much may be a question, for as an article in the *City News* says: "The owner of insanitary houses deserves no more compensation than the butcher who exposes bad meat for sale."

The Permanent Care of the Feeble-minded.

The Lancashire and Cheshire Society for the Permanent Care of the Feeble-minded asks for some help. It has been in existence for nearly five years and has already justified its addition to our philanthropic societies. As the honorary secretaries, Miss Dendy and Dr. J. J. Cox, state: "These poor folk are not idiots and cannot with propriety be sent to an idiot asylum, but they are certainly not sane and cannot be held to be responsible for their own actions. ..... They are the 'Ins and Outs' of the workhouse, they are the men who sleep in brick-crofts, they are petty pilferers, train wreckers, troublers of our peace in every direction." If this description be taken as accurate it is clearly to their interest that they should be taken care of, be kept from falling into vice and crime, and be helped to a life which will be honest, and in part at all events self-supporting. And it is also to the interest of the general community that their numbers should not increase. This can only be secured by permanent care, involving the loss of liberty, it is true, for which, however, they are not fit, and the possession of which will not increase the sum of human happiness and certainly not their own. Up to the age of 16 years the law authorises their compulsory attendance at special schools, of which there are two in Manchester, and a visit to them will convince anyone "of the absolute folly of caring for these children up to the age of 16 and then turning them loose to care for themselves." The Lewis trustees have given 20 acres of land at Sandlebridge in Cheshire and two schools have been built there, one for boys and one for girls. The children are received before they are 13 years old and will be detained as elementary school children until they are 16. After that they can only be kept "simply by making them so contented that they will not want to go away." Their weakness of will and want of initiative help towards this. Some of them have already been at these schools a year and show no restlessness. They are said to be very happy and for the most part good. While of school age they are sent and partly paid for by county councils and boards of guardians, but after that they are supported by charity and their small earnings. At present there are 30 children at Sandlebridge and there is now room for more. The schools have been built by private contributions and furnished in part by grants from the education authorities of Manchester and Salford, Bolton, and Blackburn. Ultimately the State must take charge of the children who fall into this class, but, as Sir William Houldsworth has pointed out, all great social reforms are in England initiated by private effort. A large part of the work of the secretaries consists in giving advice and help to the parents of afflicted children, and Miss Dendy has a list of 1100 such cases. There can be no question of the importance and value of the work of the society, even

when considered only in its bearing on the degeneration of the race.

The Local Government Board and the Destructor.

Some time ago the Gorton district council submitted a scheme for a refuse destructor and a mortar mill to the Local Government Board, and the council has felt somewhat mystified and amused at the answer received. This was to the effect that it was not prepared to give an unconditional assent to the inclusion of the mortar mill, but, if the council would undertake not to manufacture mortar for sale but simply for its own use, and would only sell the surplus, the cost of the necessary plant could be included in the destructor scheme. Mortar can be made out of cinders from the furnace and what is not used by the council can be sold, which, of course, is just what the council wishes.

Sept. 8th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Annual Report of the Medical Officer of Health of Liverpool.

DR. E. W. HOPE prefaces his report on the health of Liverpool during 1902 by stating that by the inclusion of Garston the area of the city of Liverpool had been extended to a total of 14,909 acres, or slightly more than 23 square miles. The population, as estimated at the middle of the year, was 710,337. The birth-rate for the whole city was 34·2 per 1000 per annum; it ranged from 19 per 1000 in the Sefton Park district up to 42 per 1000 in that of Scotland-road. The rate of mortality for the whole city was 21·6 per 1000, ranging from 12·6 per 1000 in the Sefton Park district up to 34·6 in the Exchange district. The high rate in the latter district is partly owing to the presence of numbers of common lodging-houses, the resort of tramps and waifs from all parts. As in former years, a large number of people from all parts of the surrounding districts have sought relief in Liverpool institutions devoted to the treatment of the sick and upwards of 600 of these have died in these institutions, their deaths adding to the rate of mortality in the city. It is interesting also to notice that the number of persons dying in public institutions in Liverpool is greater than in any of the other large towns, such as Manchester, Leeds, Birmingham, &c., a fact which implies a larger amount of poverty than exists in those places. Some valuable statistical tables have been obtained from the Registrar-General relating to the age and sex distribution in the different districts in the city which are reproduced in the report. Improvements in the methods of scavenging and removal of domestic refuse continue; the use of improved ashbins has markedly improved the conditions of the localities in which they have been placed. The condition of the streets in regard to cleanliness is, beyond any question, better than it hitherto has been; no doubt this is partly owing to the fact that the electric-car system of transport is perfectly clean so far as the streets are concerned. Under the terms of the Factory and Workshops Act of 1901 all underground bakehouses require either to be closed or to be certified by the sanitary authority as suitable in all respects for the purposes of a bakehouse. As many underground bakehouses are not suitable, and cannot be made suitable, it follows that these must cease to be used as such. No cases of plague were imported into the city or port during the year 1902, but in the early months of the year (as in the preceding December) the importations of small-pox were frequent. During the first five weeks of the year 20 cases were landed and from time to time during the year these importations continued. An outbreak of typhus fever associated with the insanitary area of Hornby-street gave rise to considerably anxiety, but the outbreak was fortunately suppressed. Dr. Hope deals with the causes of infantile mortality and the efforts made to check them. It is gratifying to know that the medical staff of the children's infirmary and large numbers of other medical men of experience have expressed their recognition of the benefits derived from the sale of humanised sterilised milk. As regards consumption, detailed references to the measures directed against this disease and other forms of tuberculosis are to be found in the text of the report. The system of voluntary notification had been continued throughout the year and in a large number of cases the assistance of the health department had been sought. Many thousands of cards giving instructions to consumptive persons and to those who live with them have been distributed throughout the city and enamelled plates have been fixed in suitable places requesting people to refrain from spitting on the foot-walks, this disgusting and dangerous habit being now recognised as one of the common means of spreading consumption. Good progress has been made with regard to the provision of hospital accommodation. There are at present 925 beds for infectious diseases in the various civic hospitals, but pending the completion of the general scheme already determined upon arrangements have been made with the general hospitals for the isolation of a certain number of cases of typhoid fever.

The Decline of Small-pox in Liverpool.

There are now only 39 cases of small-pox in hospital. During the past six months there have been 972 cases under treatment in hospital. Of these cases 215 showed no signs whatever of having been vaccinated and 57 died. On the other hand, 757 cases were of persons who had been vaccinated and out of this large number there were only 11 deaths, or 1·4 per cent. The number of cases over 30 years of age was 592, of which 171 were unvaccinated and 35 died, while the number of vaccinated over 30 years of age was 421 and only one died. There were 380 cases under 30 years of age, of whom 44 were unvaccinated and 22 died. In other words 50 per cent. of the unvaccinated persons under 30 years of age died. Of the 972 cases treated at Parkhill Hospital not one showed marks of revaccination. This was a most significant circumstance. If revaccination were compulsory in England, as it is in Germany, the probability is that small-pox would eventually be stamped out. The immunity of the staffs of the hospitals was a very important feature. At the hospitals the staffs who came in contact with the small-pox cases remained absolutely immune and as free from the disease as if they had been miles away from the patients. These facts show the necessity of a new Bill being brought in giving health authorities powers to compel people to be revaccinated when they had been in contact with small-pox cases.

Birkdale Infectious Hospital.

At the Birkdale town-hall on August 26th Dr. S. W. Wheaton, Local Government Board inspector, held an inquiry into an application of the Birkdale urban district council for sanction to borrow £2750 for the provision of an infectious diseases hospital. It is intended to make provision for 18 beds. The medical officer of health said the accommodation was much needed and asked for a speedy reply from the Local Government Board. The site for the proposed hospital was visited by the inspector.

The St. Helens Hospital Extension.

The sum of £8630 has already been promised in response to the appeal of the committee for funds to assist in meeting the expense of the enlargement of St. Helens Hospital, the total cost of which is expected to reach £18,000.

New Liverpool Magistrates.

Amongst the names of the 17 gentlemen who have been recently appointed to the commission of the peace for the city of Liverpool are those of Dr. Richard Caton, one of the consulting physicians to the Liverpool Royal Infirmary; Principal A. W. W. Dale, of the new University of Liverpool; and Mr. John Lawrence, one of the most active members of the committee of the Royal Infirmary.

The Expedition to the Congo for the Investigation of Sleeping Sickness.

The medical expedition to the Congo sent out by the King of the Belgians in conjunction with the Liverpool School of Tropical Medicine to investigate cases of sleeping sickness and other tropical diseases sailed from Southampton on Sept. 4th in the Elder-Dempster liner *Albertville*. The expedition, which consists of Dr. J. E. Dutton, Dr. J. L. Todd, and Dr. C. Christy, prior to embarking lunched at the South-Western Hotel in company with a number of local commercial gentlemen and representatives of the Liverpool School of Tropical Medicine, including Major Ronald Ross, C.B., F.R.S., and Professor Rubert W. Boyce, F.R.S., Sir Alfred Jones, K.C.M.G., the chairman of the school, presiding. In the course of the speeches which were delivered reference was made to the importance of the research and to the risks of the members of the expedition in undertaking the task, and an appeal was made for practical aid in carrying out the work. Telegrams were read from the King

of the Belgians and Mr. Chamberlain, wishing the expedition every success. The mayor of Southampton expressed the indebtedness of the community to the members of the expedition and said that a mission of greater importance had never been despatched from this country.

Sept. 8th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Butchers and Tuberculous Meat.

REFERENCE has been made in THE LANCET of August 8th, p. 428, to the action of the butchers of Glamorganshire and Newport in connexion with the guaranteeing of cattle free from tuberculosis. Conferences have been held between farmers, cattle-dealers, and auctioneers on the one hand and butchers on the other with a view to arrive at a common understanding on the matter, but as no agreement has seemed possible the butchers, at a meeting held at Cardiff on August 29th, passed the following resolution:—

That in consequence of the serious loss sustained by butchers purchasing cattle, sheep, pigs, and calves which, on being slaughtered, are found to be affected with tuberculosis or other disease and therefore unfit for human food, we are of opinion that the time has arrived when all cattle of not less value than £8 per head, calves and pigs of not less value than £1 10s. per head, and sheep of not less value than £1 per head, sold either by public auction or private treaty, shall be guaranteed by the vendor free from tuberculosis or any disease and that steps be taken to enforce the demands of the Allied Associations (of Butchers).

Small-pox.

Cardiff has been free from small-pox since the end of July and Swansea has been free since May. There were 17 cases during July in Pontypridd, which town is now free from the disease, but during August three cases occurred in the adjoining district of Mountain Ash. At Brynmawr, in Monmouthshire, a case was reported at the end of August.

A New Asylum for Worcestershire.

The asylum which was built in 1852 at Powick, near Worcester, for the city and county of Worcester has from time to time been increased until there is at the present time accommodation for 1200 patients. The population of the whole county is now about 500,000 and is increasing at the rate of nearly 8000 annually. For several years past the county council has been aware of the necessity either for further increasing the Powick Asylum or for establishing a second institution, and the latter course was eventually decided upon. On Sept. 3rd the foundation-stone of new buildings was laid by the Earl of Coventry. The site of the proposed asylum is about two miles from Bromsgrove on the Barnsley Hall estate of 324 acres which was purchased by the county council for £17,000. The administrative accommodation is to be sufficient for 1200 patients, but for the present there will be actual asylum accommodation for 254 male and 316 female patients. Included in the scheme are a chapel, isolation hospital, residence for medical superintendent, and eight cottages for attendants. The buildings are to be completed and furnished by January, 1906, and the cost is estimated at £216,000.

Memorial to Mr. John Griffith Lock, Tenby.

Mr. Robert Lock, M.A., a solicitor of Tenby, has presented to the managers of the Tenby Cottage Hospital a cheque for £200 for the endowment of a bed in the hospital in memory of his father and mother and of his brother, the late Mr. John Griffith Lock, M.R.C.S. Eng., L.R.C.P. Lond., who was instrumental in founding the hospital and who was also the first medical officer of health of the borough. During the 35 years for which Mr. Griffith Lock held office as medical officer of health a water-supply and a complete sewerage scheme were provided for the town and the general sanitary condition of the borough was brought quite up to the requirements of the present day.

Vaccination Expenditure.

At a meeting of the Langport (Somersetshire) board of guardians held on August 25th it was reported that during the four years prior to the date when the last Vaccination Act came into force £184 were paid to the public vaccinators for 957 vaccinations and that during the four subsequent years there were 1147 primary vaccinations and 81 re-vaccinations for which the public vaccinators received £757. It was decided to suggest to the Local Government Board that a revision of the fees should be made, on the basis of 5*s.* for a primary vaccination if the operation is performed within the parish in which the public vaccinator resides and 7*s.* 6*d.* if it is performed in any other parish.

Death of Mr. Andrew Buchanan Blair, M.B., C.M. Edin.

Through the death of Dr. Andrew Buchanan Blair on August 30th, at the early age of 33 years, the medical profession has lost one of its most promising members. Dr. Blair had practised for about four years in Banwell, Somerset, where he was one of the medical officers to the Axbridge union and to several friendly societies. He leaves a widow and one son.

Death from eating Yew Leaves.

At a meeting of the Yeovil board of guardians held on August 29th a letter was read from the medical superintendent of the Wells Asylum in reference to the death of a lunatic, stating that the symptoms indicated cerebral apoplexy, but that the post-mortem examination disclosed a quantity of yew leaves in the stomach. Yew was also found concealed in the man's clothing, but how he became possessed of it the writer had been unable to ascertain as the deceased had been confined in that part of the institution where no yew trees grew, but in all probability it was brought by some other patient. The guardians, who had previously considered that there might have been some laxity on the part of the asylum authorities, expressed themselves as fully satisfied with the explanation.

Sept. 8th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Girgenti Inebriate Reformatory.

The committee of the corporation of Glasgow, of which Mr. John Carswell is convener, has issued its second annual report (1902) on the work of the certified inebriate reformatory known as "Girgenti Home." While the home is licensed for 58 inmates, 50 beds are provided and although 40 patients were in residence at the end of 1901 at other seasons the home was practically full. The 50 beds above referred to are not all in the principal part of the home, the managers having in the month of February furnished one of the dwelling-houses at the farm-stead and erected six beds therein. This house has been fully occupied nearly all the year and the particular feature of this departure is that it gives an opportunity to those resident therein to live under conditions more resembling home life and at the same time grants them a kind of modified parole. The number of patients passed into the home as at Dec. 31st, 1901, was 46; during the year 1902 20 new admissions were made, making 66 as the total number on the register. At the end of the year 1902 40 were in the home; 10 were "licensed out." Of the 40 resident, three had been in the home for over 18 months, 16 for over one year, and the remainder for one year or less. The effect of treatment is indicated by the fact that 17 have been classified as "hopeful," 12 as "doubtful," and six as "hopeless"; the remaining five were resident for only a short period and were therefore not included in this classification. Of the ten licensed out under the care of guardians nine were doing well; the managers in this part of the work have met with much difficulty in finding suitable situations and guardians for these. Of the total number (66) five were transferred to the State Reformatory as incorrigible to discipline, seven escaped (four of the licensed-out cases and three from the home), and one died. The managers have consistently, while maintaining the discipline of the home, allowed the inmates a fair amount of freedom. They regret that the escapes for the year are so numerous. These, while involving a great deal of trouble and annoyance, can scarcely be avoided unless resort is made to methods adopted in prison life, which is objectionable, or increasing the staff, which would entail a considerable increase in expenditure. With regard to the employment of patients while in the home no difficulty was experienced in finding work. The committee in submitting its annual report point out that the Act (the Inebriates Act of 1898) provides for the committal to certified inebriate reformatories of (1) persons who have been convicted of certain scheduled offences, arising out of drunkenness, three times within the preceding 12 months and who are habitual drunkards; and (2) persons

charged with an indictable offence committed while drunk and who are habitual drunkards. No committals have been made to Girgenti under the second of these enactments. No provision exists for the compulsory committal of habitual drunkards who have not been convicted of police offences involving drunkenness. Experience has shown that only the street pest and the drunken flotsam and jetsam of our towns come within the scope of the Act. From the opening of the home in January, 1901, to the end of March, 1903, 200 cases were remitted by magistrates from the various police courts of the city for inquiry. Of these 92 were accepted by the committee and reported to the sheriff's fiscal, but for various reasons only 66 were actually admitted to the home. 108 were rejected as unsuitable for treatment. These figures relate to "cases," not persons, a number of the "cases" having been rejected more than once or rejected and subsequently taken up. With regard to those rejected as unsuitable for treatment and those that prove "hopeless" after residence the committee states that they must be controlled, and the prison system has failed to do it. Experience has shown that all the hopeless cases are of two classes: (1) those who are vicious and uncontrollable to a degree almost amounting to insanity; and (2) those who are physically deteriorated to a degree that places them beyond any hope of ever being fit for efficient work. The cases of the first class should be undertaken by the State because they require almost prison discipline, and the second class should be cared for by the parish council because most of them are already paupers and all require some medical care and simple fare. The committee would therefore recommend that an amendment of the Act should give discretion to the sheriff to commit an inebriate who is a pauper or a fit object for parochial relief to the care of the parish council for a similar period and under similar conditions as if committed to a certified inebriate reformatory. All others should be committed to certified or State inebriate reformatories. The Act will fail in its purpose unless *all* inebriates liable under the Act are committed or otherwise dealt with.

The Health of Aberdeen.

THE medical officer of health of Aberdeen, Dr. Matthew Hay, has issued an interesting report on the public health of Aberdeen in 1902. The birth-rate, he shows, continues its steady decline, especially among the upper classes. In 1902, with 4814 births, the rate was 30·5 per 1000; in 1901, 31·0; in 1900, 31·9. It looks as if before many years have passed this country will be in line with France, when our population will become stationary, though towns may continue to grow at the expense of the rural districts. We shall then have to face a social and economic problem of supreme interest and importance. The marriage-rate, after having declined in the past two years to 9·0 and 8·9 respectively, has again risen to 9·1. The fact that the marriage-rate has been rising while the birth-rate has been falling only emphasises the seriousness of the decline of the latter. The death-rate from cancer and other malignant diseases was 88 per 100,000 of population, as compared with an average of 91 in the preceding five years. 30 to 40 years ago the rate was 59. The rise in the mortality from cancer has often been spoken of as being merely an apparent rise due to improved medical diagnosis, but the most recent inquiries into the subject seem to show that while a part of the rise may be thus accounted for such an explanation cannot be applied to the whole rise. There is no general agreement as to the other causes of the increase, and, indeed, there is scarcely as yet any adequate suggestion of the causes. Dr. Hay believes that an important factor in the reduction of the death-rate in recent times has been the reduction in the hours of labour. It would be, he thinks, a great gain to many workers and would not cause any appreciable inconvenience to the community could the working hours of every person be brought within the limits usually imposed in ordinary trades. Shopmen as a class suffer more in this way than any other class of workers. "Life," he says, "is scarcely worth living when a bee-line must be taken from bed to business and from business to bed." Dr. Hay directs pointed attention to the growing use of methylated spirits as an intoxicant. As is generally known, methylated spirits is ordinary spirits of wine, with one-tenth of wood-spirit added to it. Within recent years a small proportion of petroleum oil (3 to 800) has also been added. These additions have been authorised by the Government in order to enable persons engaged in certain industries to obtain an alcoholic spirit for industrial purposes which, because of its being rendered nauseous and unpalatable, might be sold and used practically free from the heavy duty applicable to ordinary spirits of wine, without, it was believed, anyone being tempted to use it for intoxicating purposes. Unfortunately, these nauseous additions are not deterring the poorer and more degraded class of drinkers from using methylated spirits as an intoxicant, and Dr. Hay believes that such a use of it is gradually increasing. "Methylated spirits can be retailed," he says, "at 4*s.* a gallon, or 4*d.* a pint bottle, and if diluted to the same strength, in respect of alcohol, as cheap whisky, could be sold at, say, 3*s.* a gallon, or 3*d.* a pint bottle, or less than ½*d.* a glass. Even the cheapest genuine whisky costs probably from four to five times as much as this. When a man takes to drinking methylated spirits he goes rapidly from bad to worse, becomes exceedingly irregular in his work, neglects his family, and loses all moral sense. His health also rapidly deteriorates and more quickly than under the excessive use of ordinary spirits. The methylated spirits is so cheap that a man, however poor or broken-down, is scarcely ever without the necessary halfpenny or penny, though it should have to be borrowed from a fellow-workman, and I am informed that such borrowings are frequent. Thus, apart from the deleterious effects of the spirits, a man can obtain a larger supply of alcohol and continue his debauch for a longer time than if he were dependent solely on ordinary spirits. So far as I can ascertain, the drinker of methylated spirits does not acquire a preference for it to ordinary spirits; its sole attraction is its cheapness. He is usually a man who has previously been accustomed to indulge a little too freely in ordinary spirits, without, however, necessarily becoming an irregular worker. His degradation is greatly accelerated by the change to methylated spirits." Dr. Hay obtained this information from the Labourers' Federation in Aberdeen who are seriously apprehensive of the great evils arising from the growing addiction to the use of methylated spirits among men in their own ranks. The practice is prevalent in other large towns besides Aberdeen.

Sept. 8th.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

The Revolt of the Irish Poor-law Medical Officers.

THE conflict between the Poor-law medical officers of Ireland and the union boards of guardians shows no sign of abatement. Dr. L. Kidd, president of the Irish Medical Association, recently addressed a long letter to the daily papers in which he says, *inter alia*: "We are driven to our present state of combination from which we will not recede until our demand for an impartial inquiry into the Poor-law medical service is granted. Possibly in order to secure this, having learned by experience that deputations and other representations are useless, we may be driven to a wholesale resignation." The medical officers representing the County Wexford Branch of the Irish Medical Association with some of the Poor-law guardians met in Enniscorthy on Sept. 1st when Mr. Flinn, the medical inspector of the Local Government Board, attended in virtue of his position as inspector of the district, and stated that the Local Government Board had for years shown itself sympathetic to the claims of the medical officers. Commenting on this rather surprising statement the *Irish Times* of Sept. 5th said, "We regret that we are unable to agree with Dr. Flinn." "The Local Government Board, from some unexplained cause, has turned a deaf ear to the cry of the hard-working dispensary or workhouse doctor." The fact is notorious. The Local Government Board has given many recent indications of its determination not only to support the boards of guardians in refusing an increase of salary to medical officers but has even gone the length of declining to legalise small advances recommended by the guardians themselves. In the case of Carrickbyrne the guardians complained bitterly that they were unable to make the small increase which they wished to make and were accordingly put to the expense of many fruitless advertisements and were forced to pay four guineas per week to a locum-tenent. It is not long since that an advance from £120 to £150 in the paltry salary of a dispensary medical officer has been disallowed—although recommended by the guardians—by the Local Government Board. At the Enniscorthy meeting the guardians offered a

salary of £150 to the dispensary medical officers all round and the representative of the Local Government Board signified the approval of that body. This compromise was refused by the medical officers of Wexford pending the decision of the Irish Medical Association which will doubtless refuse it also.

Sept. 8th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Do Infectious Hospitals constitute a Centre of Danger to the Neighbourhood?

FOR some time public opinion in Paris has occupied itself in considering whether hospitals where a large number of patients with infectious disease are gathered together do not constitute a danger to the vicinity. The general opinion is that they do, for when it was recently proposed to build infectious hospitals in the suburbs of Paris the representatives of the communes interested in the matter unanimously sent in protestations. Dr. Farnarier has made a serious study of this question so as to be able to rebut the arguments of the municipalities by figures and statistics. He took the mean of a period extending over 35 years—viz., from 1865 to 1900—and his conclusions are as follows. A hospital which is used for cases of diphtheria has an influence upon the diphtheria mortality in the neighbourhood. It cannot be exactly determined how this influence works, but it must be due to an augmentation of mortality throughout the whole of the arrondissement. This augmentation, however, can only be due to the increased number of deaths from diphtheria which occur in the immediate vicinity of the hospital, for it is difficult to allow that the contagion can be carried to such a distance as two kilometres, which is about the distance of that part of the arrondissement which is farthest away from the hospital. As regards scarlet fever the figures are less striking, but even if the dangers of contagion from this disease appeared to be less obvious than those from diphtheria they are none the less real in the opinion of Dr. Farnarier, who bases his opinion upon the mortality from scarlet fever in the quarter in which is situated the Necker Hospital. As regards measles, the figures are contradictory, and it is not very probable that the presence of a hospital full of patients suffering from measles is a very marked source of infection to the neighbourhood; if, at least, it is true that this disease is only contagious during its period of invasion—that is to say, before the patient has been sent to a hospital. As regards whooping-cough, the danger of contagion from this disease seems to be practically nothing. Dr. Farnarier considers it to be incontrovertible that diphtheria and most probably scarlet fever spread infection around the hospitals where patients suffering from these two diseases are treated, but it must not be concluded from these facts that infectious hospitals ought to be removed from urban districts. It would be possible greatly to minimise all dangers from the method of treating infectious cases by attention to the principles of modern hospital hygiene, by using small isolated blocks or wards surrounded by trees, and by having a wall round the whole establishment which should inclose a sort of neutral ground (*espace mort*), and, above all, by exercising the strictest surveillance over the coming and going of the various people which are inevitable in a large hospital establishment. By attention to these methods Dr. Farnarier thinks that it will be possible to reconcile the two essential points—viz., leaving the infectious hospitals in the places where they are most necessary, that is to say, in the centres of population; and sparing the inhabitants of the districts in close proximity to the hospital the risk of infection.

School of Colonial Medicine.

The cities of Bordeaux and Marseilles having each made a request to be provided with a school of colonial medicine political influences led to the preference being given to Bordeaux and a school of this kind was accordingly established there. Marseilles, however, was not discouraged by this want of success and did not relax its efforts, the result being that the new Ministry has just granted its request. And with good reason, for the vessels of the lines belonging to Bordeaux only touch at Senegal, whereas all the other French colonies are in communication with France by way of Marseilles. Surgeon-Major Martine, of the colonial military service, has just been appointed by the Minister of War to confer with the municipality of Marseilles relative to the establishment of a school of colonial medicine in that city and has had several interviews with M. Dubois (the deputy mayor), with Dr. Queirol (director of the school of medicine), and with the municipal architects.

Grand Manœuvres of the Army Medical Corps.

The annual manœuvres of the Army Medical Corps, which were held on the plain of Champigny and terminated on August 29th, were of special interest this year. The scheme of the operations, which were conducted by General Bourney, did not present any very striking feature. On the first day the enemy was supposed to have received reinforcements and the Paris corps retreated in good order on the capital. The Army Medical Corps had only to keep in working order the various parts of the system specified in the regulations—namely, the "trois échelons" regimental dressing stations 1500 metres from the firing line; divisional ambulances 1500 metres further off, with an intermediate ambulance; and, finally, the field hospital coming in the evening to clear the ambulance, whereby the ambulance recovered its mobility and could rejoin its division. The system was worked in this way and as on all former occasions it succeeded fairly well, but every year it becomes more evident that this regulation, which is based on the German one, is inapplicable in practice and is very dangerous. A new regulation will be made before long. Every day from the commencement of the operations M. Vaillard, the principal medical officer, gave a criticism of the existing system for the benefit of those attending the manœuvres. It is to be hoped that in the forthcoming regulation effect will be given to his remarks. The starting point of the present system is the dressing station (*poste de secours*) placed as near as possible to the firing line, taking such shelter as may be possible, receiving the wounded whom the regimental bearers bring in, rendering first aid, making a preliminary classification, and sending away the wounded by the ambulance with dressings on and classified according to the severity of their injuries. The dressing station ought as much as possible to keep up with that portion of the fighting line with which it is connected. The danger of the system can be seen at once and on the level plain of Chennevières it appeared immediately. In the zone in which the dressing station is supposed to be established there is an incessant coming and going of bearers making their way from the firing line to the dressing station, from the latter to the intermediate ambulance, and from this to the ambulance itself. Now, it is just in this zone at distances of from 1000 to 3000 metres that 75 per cent. of the enemy's projectiles fall, according to the observations of Wololskoi. The bearers therefore could not be expected to show the heroism requisite for traversing such ground, and, moreover, the commanding officers would certainly raise objections, for while the soldiers were lying flat on the ground and concealing themselves as well as they could from the enemy, the upright figures of the bearers moving about would serve to give a direction to the fire of the enemy and would reveal to him the position of the divisional reserves, near which the ambulance always is. It has, therefore, been suggested that the dressing stations should be placed at the wings of the forces engaged where the fire is less deadly and where they could more easily follow the movements of the soldiers and keep up with them. It has even been proposed to do away with them altogether and to replace them by regimental dressing outfits carried by a mule under the command of the surgeon and his assistants. During the progress of a battle there would be no picking up of the wounded. Every soldier is now supplied with an antiseptic dressing for his own use which can be applied to his wound either by himself or by a comrade; he has then only to lie down and to wait for the arrival of the regimental surgeon who will have him picked up at the first slackening of the fire or during the issue of fresh ammunition. This would be far quicker than picking up by bearers and far safer for everybody concerned. The articles kept at the dressing station are capable of simplification and might be limited to the very ingenious ready-prepared dressings which M. Chauvel made a trial of when he was director of the Army Medical Service. They consist of a covering ready to be placed on the wound composed of successive layers of antiseptic gauze, cotton wool, oiled silk, and a bandage fastened by two pins. These dressings, which are put up complete in packets,

sterilised beforehand, are opened by merely pulling a thin string and can be immediately applied and fastened upon every wound. A wounded man may in this way pass several hours without danger waiting for the permanent dressing which will be performed at the ambulance. In this way a considerable number of wounded men may be attended to at the dressing station in a very short time. The stock of materials being reduced to a full supply of these packets, which are all alike, it will be possible to do away with the inconvenient baskets in which materials for making up dressings are kept separate. Not to speak of the difficulty of carrying them, a great loss is occasioned by these baskets being left open during the hurry of moving. Again, if one basket goes astray or is emptied no complete dressing can be carried out at the station. This question is one of great importance and may become urgent when patients are transferred from the ambulance to the field hospital on the evening after a battle. The field hospital then becomes stationary until these patients either recover or are discharged, whilst the ambulance now unoccupied once more follows its division. At the present time the articles kept in stock in these two units are quite distinct, and yet they ought to be identical and interchangeable. The staff of the field hospital, however, consists exclusively of officers of the reserve and the territorial army, whilst the officers of the mobile ambulance are surgeons on active service.

Sept. 5th.

EGYPT.

(FROM OUR OWN CORRESPONDENT.)

The Disposal of Excreta in Cairo.

Apropos of the discussion on the disposal of excreta in the tropics, recently held in the Tropical Section of the British Medical Association meeting at Cardiff, it may not be uninteresting to describe what provision is made in this respect in subtropical countries such as Egypt. In general it may be said that there is a system of water-closets which discharge their contents into cesspits. In Cairo these cesspits are sunk in the ground and are for the most part substantially built of brick lined with cement. They are emptied as occasion demands by means of a steam pump and exhaust pipe, the contents being pumped directly into iron carts shaped like large boilers and securely sealed and valved. The excreta are thus conveyed to a sewage farm some six miles to the south of the city and there scientifically treated. As a rule this system works well and it is rare that any epidemic is traceable to the condition of the cesspits. Hitherto provision has been made for the construction of cesspits on a small piece of vacant land adjoining the building; but latterly, owing to the increase in the value of building property and in the rents of flats in Cairo, owners of land are very generally adopting the practice of building over every inch of land available, with the inevitable result that the cesspits have to be constructed in the basement. It is extraordinary that this should be so but it is nevertheless perfectly true, and of the many new buildings in Cairo the great majority have no provision whatever for cesspits other than this. Architecturally many of these great blocks of flats are wellnigh perfect, but what can be said of the sanitary arrangements when the cellar contains several large cesspits? One of these blocks, conspicuous on account of its elaborate decoration, is flanked by two ornamental towers placed at a short distance from either end of the building. To the general public these towers have some claims to architectural beauty, but to the sewage company officials they serve a much more practical purpose as they indicate the position of the cesspits deep down in the basement. Some attempt is made to ventilate the pits by air shafts and ventilating pipes, but this, in a building four or five storeys high, not including the depth of the bottom of the pits below ground level, cannot hope to be very satisfactory and the least flaw in a pipe in any part of its length may be fraught with serious consequences. Another block of buildings belonging to the same proprietary as that just mentioned is built on similar lines, and although it has only been occupied for rather more than a year a large sum of money has been already spent to prevent the poisoning of the various suites of apartments from leaking ventilation pipes and after all the owner has found himself compelled to purchase a piece of adjoining land on which to construct new cesspits. At the present moment the foundations of a large block are being dug and in full view of all the passers-by three large brick cylinders have been built before anything at all has been done to the foundations. These are the cesspits and they will be immediately under the centre of the house, and the ventilating pipes to be of any efficacy at all must pass upwards through the middle of the building. What the condition of all these buildings will be in a few years' time it is difficult to imagine; and the pity of it all is that this state of things comes about from the absence of all laws and regulations providing for the adoption of proper sanitary principles in the building of a dwelling. The Sanitary Department is quite powerless to prevent these scandals and menances to the public health; and such is the assurance—to put it mildly—of the proprietors of such buildings that they do not hesitate for a moment to request Price Bey, the engineer of the department, to give them a certificate to the effect that the sanitary arrangements in their property are perfect. In spite of the greatest care in the emptying of the pits there must come a time when a more thorough cleansing, or even a repairing, will be necessary and the problem is how is this to be done? In each of the two worst examples of these insanitary houses three medical men have flats. It is to be hoped that as the drainage of Cairo becomes an accomplished fact the water system will become universal; but this desideratum is likely to be long deferred, for, with the exception of a small area riddled with pipes for surface flood waters, drainage in Cairo is practically non-existent. The sanitary arrangements of the large hotels in Cairo are as perfect as is possible in the circumstances. The cesspits are well away from the buildings and are regularly and carefully emptied and efficiently ventilated. In one instance, from considerations of construction and position, the dry-earth system has been adopted and, being carefully supervised, works well. The excreta are buried in the desert at a considerable distance from the establishment. Of the sanitation and sanitary arrangements among the natives in Cairo and generally throughout the country it were best to be silent, after having expressed our deepest gratitude to the Creator for the existence of the two great sanitary agencies of the country, the sun and the Nile. That it is almost impossible to instil rational sanitation into the native mind is abundantly evident from the following. A late Director-General of the Sanitary Department, on relinquishing his appointment and taking up new duties, rented an office from his former secretary who had invested his savings in house property. His disgust may be better imagined than described when he found that in spite of a long course of training in practical house and hospital sanitary arrangement the aforesaid secretary had deliberately installed in his own property every sanitary abomination possible without the least scruple, acting entirely on the principle that, after all, the way of his forefathers was the best, whatever modern scientific sanitation, embodied in the Director-General of the Sanitary Department, might say to the contrary.

The Decrease of Stone in the Bladder.

During the last four or five years there has been a very marked decrease in the number of cases of stone in the bladder in Egypt and at the present moment less than half the number are admitted to Kasr-el-Aini Hospital than was the case ten years ago. It is not that the conditions of life of the people are at all different; it appears to be due to the supply of sufferers becoming exhausted. Owing to the increased facilities of travel and the confidence of the natives in the lithotrite—the stone engine, as they call it—during the last few years they have come in large numbers to the hospitals, and especially to Kasr-el-Aini, until now there are not many more cases of stone left. Certainly not more than 200 cases were operated upon in Cairo during the last 12 months.

Malta or Mediterranean Fever.

In the last year and a half several cases of typical Malta fever have been observed in Cairo and during this summer cases have been met with even as far south as Khartoum. The serum tests have been applied with positive results and although no fatal cases have hitherto been reported several patients have been severely ill and for some considerable time after the acute symptoms have subsided have had an irregular afternoon temperature, even for several months. As elsewhere, treatment by quinine seems to be quite useless. It seems probable that many cases formerly called dengue fever were really instances of Malta fever.

The Cattle Plague.

The cattle plague is sensibly decreasing everywhere. It seems unlikely that there will be any opportunity of testing the serum locally manufactured to any extent in this epidemic owing to the difficulty in determining the correct dose and in standardising the serum. Good work is being done at the serum farm at Abbassieh by Professor W. St. Clair Symmers and his assistants, but very rightly no steps are being taken to supply serum until repeated experiments prove the efficacy and the safety of the inoculations. It is to be hoped that the serum farm will become a permanent institution so that a good supply of preventive serum may be always on hand in the event of a future epidemic. Large sums of money are being distributed by the Government as compensation for deaths caused by the injection of the animals with the faulty serum from Constantinople.

Bubonic Plague.

Isolated sporadic cases of bubonic plague are reported from certain districts, particularly Alexandria and Damietta, but the prospects of a plague-free season are promising. A report recently issued by the Sanitary Department shows that from the beginning of 1903 to the end of July there have been 174 cases, of which 79 terminated fatally. Of the 26 Europeans affected 11 recovered as did 68 out of the 148 natives. No less than 26 deaths took place out of hospital, showing that there is still a difficulty in securing cases at an early stage, the danger being that a case that is not found until the patient is moribund or actually dead may have been the means of infecting many others.

Cairo, August 30th.

NEW YORK.

(FROM OUR OWN CORRESPONDENTS.)

Transmission of Yellow Fever.

THE United States Yellow Fever Commission, after six months' study, has reported on the transmission of yellow fever to the following effect: (1) that the bacteriological examination of the blood of cases of yellow fever during life and the blood and organs at the necropsy, performed immediately after death, in uncomplicated cases is negative; (2) that the stegomyia fasciata when contaminated by feeding on a case of yellow fever 41½ hours after the onset of the disease and subsequently fed on water and sugar for 21 days, one and a half hours, can, when permitted to feed on a non-immune individual, produce a severe attack of the disease; (3) that the stegomyia fasciata contaminated by yellow fever and after varying periods killed, made into sections, and appropriately stained, presents with regularity a protozoan parasite, myxococcidium stegomyiæ, that can be traced through a cycle of development from the gamete to the sporozoite; and (4) that the stegomyia fasciata fed on blood from a case of malarial fever, on normal blood, or artificially fed does not harbour the parasite indicated in conclusion 3.

Value of Preventive Inoculation for Plague.

A medical correspondent of the *Medical Record*, writing from Manila, contrasts the method of control of the disease at Hong-Kong and Manila as follows. While the authorities in Hong-Kong are making every effort to place the city in good sanitary condition and to exterminate the rats, they have not resorted to the wholesale preventive inoculation against plague which seems, far more than anything else, to have reduced the disease in Manila. The Chinese in Hong-Kong are opposed to all sanitary measures, but particularly object to inoculation, and the authorities seem to have hesitated to excite still further opposition. Experience in Manila goes to show that inoculation with antiseptic prophylactic virus, repeated in ten days, is as certain a preventive of plague as vaccination is of small-pox. It has been made compulsory with respect to all the 60,000 Chinese in Manila and during the last two months a large proportion of these have been inoculated. The epidemics in Hong-Kong and Manila started at the same time and the number of cases in both cities progressively increased at the same rate up to the time systematic inoculation was instituted at Manila. The Chinese in the worst infected districts were inoculated first and the decrease in the number of cases was not only great but was noticeable within a few days. Inoculation was begun about April 20th and during that month there were but 52 cases, while in Hong-Kong the number of cases more than doubled. In Manila the cases for May fell to 25, while in Hong-Kong the total for the month was nearly 500 cases. In Manila the number of cases up to the 19th of the month was nine, while the latest report from Hong-Kong shows 136 cases in one week. The writer concludes that from experience there would seem to be no question that while general sanitation and rat-catching are of importance by far the most efficient agent in combating the disease is found in systematic and thorough inoculation of the class of persons who are most liable to contract the infection.

Investigation of the Bahama Islands.

The Johns Hopkins University and the Baltimore Geographical Society sent an expedition of investigation to the Bahama Islands, the medical department of which was placed in charge of Dr. Penrose. During the investigation 1100 cases of sickness were examined. It was found that the natives have but little medical treatment owing to their poverty. Skin diseases, and especially leprosy, were found to be very prevalent. No effort is made to prevent the spread of leprosy and many instances were noted where persons suffering from that disease were engaged in the sale of provisions, in piloting vessels, and in other pursuits. No cases of yellow fever were discovered and but two cases of malaria were recognised. Many species of mosquito were secured for subsequent study. A special feature of the work of the medical department was the study of the degenerates of Abaco, descendants of the Torys, who closely intermarry. The results of this expedition promise to be of much interest.

Quarantine Regulations against Lepers.

The quarantine regulations of the principal ports of the United States have been very lax in the case of lepers but stringent rules will hereafter be enforced against vessels arriving with this class on board. Pratique will not be granted until the leper with his or her baggage has been removed from the vessel to the quarantine station. If the leper is an alien passenger and the vessel is from a foreign port the case will be certified as a leper and reported to the nearest Commissioner of Immigration. If the leper is an alien and a member of the crew and the vessel is from a foreign port the leper will be detained at the quarantine station at the vessel's expense until taken aboard by the same vessel when outward bound. Such cases of leprosy should be promptly reported to the collector of customs at the port of arrival of the vessel and the collector will exact a bond from the vessel for the re-shipment of the leper upon the departure of the vessel.

A Tuberculosis Exposition.

It is proposed by the Maryland Public Health Association and the Tuberculosis Commission appointed by the governor of that State to arouse public and professional interest in that State and in the country at large in a tuberculosis exposition to be held in Baltimore. The basis for the exposition will be the investigations of the Tuberculosis Commission into the cause, the prevalence, and the distribution of human tuberculosis in that State, its influence on the public welfare, and the best methods of restricting and controlling the disease. The commission is taking a census and making a special effort to determine in each individual case the cost incident to the disease to the individual, the family, and the State. The medical questions involved, the importance of habits, occupation, and housing conditions, are under consideration. The ultimate purpose of the exposition is to determine the proper legislation, municipal, State, and national, to be recommended, some definite line of prophylaxis, as well as measures relating to the care and cure of both advanced and incipient cases of pulmonary tuberculosis.

The Liquor Problem in the United States.

A valuable series of reports on the above subject have been published in the United States since 1897. They were published under the direction of a subcommittee of what is known as the Committee of Fifty. The Committee of Fifty is composed of prominent men in all branches of life who are interested in the welfare of the people. The fourth volume of this series of reports has just been published under the editorship of Dr. John S. Billings, and treats of the physiological aspects of the liquor problem. The investigations, the results of which are included in this work, were made under the direction of Professor W. O. Atwater, Dr. Billings, Dr. H. P. Bowditch, Dr. R. H. Chittenden, and

Dr. W. H. Welch, and are naturally of much scientific value. The trend of the conclusions reached is for the most part conservative—that is to say, alcoholic stimulants are not condemned as wholly injurious in all circumstances. The subcommittee does not favour the custom now prevailing in the United States of giving systematic instruction to all children in primary schools on the subject of the action of alcohol or of alcoholic drinks. The committee considers that in the case of older children some such teaching is proper, but that with young children physiological instruction is calculated to do more harm than good.

Food Preservatives.

Dr. Wiley of the United States Bureau of Chemistry of the Department of Agriculture has recently concluded a series of practical experiments with the view of discovering the effect of certain food preservatives upon the human system. Dr. Wiley experimented upon a number of young men who voluntarily ate various kinds of canned foods. Two facts have been proved. The first is that the consumption of food containing borax diminishes the natural weight of the human body and that such persons take some time to regain their former weight when the experiments have been stopped. The second fact is that the use of borax has the tendency to reduce the amount of nitrogen in the human body and that the volume of nitrogen will probably not again return to that existing before the experiments. Dr. Wiley, speaking before the National Association of Food Commissioners, in summing up the results of his work said: "Foods can be preserved for a considerable length of time in most circumstances without resorting to any chemical preservative or added preservative of any kind. Simple sterilisation, which can be applied to most foods, is most effective and the least objectionable of all forms of food preservation. There may be occasions of emergency or exigency in which the use of a chemical preservative is rendered imperative. It may be a wise policy not to inaugurate absolute prohibition against all preservatives, but it certainly is true that wherever for any reason a preservative must be used the package of food containing it should be clearly marked." Dr. Wiley is about to visit England, France, and Germany in order to study the question of food preservatives and to endeavour to establish relations leading to coöperation in the work which has been set in progress to secure to consumers wholesome and unadulterated food.

August 29th.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., New York and London.

Gynæcology. By William R. Pryor, M.D., Professor of Gynæcology in the New York Polyclinic Medical School. Price 15*s.* net.

Diseases of the Ear. By Edward Bradford Dench, Ph.B., M.D., Professor of Diseases of the Ear in the University and Bellevue Hospital Medical College. Third edition, revised and enlarged. Price 21*s.* net.

BRITISH MUSEUM (NATURAL HISTORY), Cromwell-road, S.W.

A Monograph of the Culicidæ or Mosquitoes. By Fred. V. Theobald, M.A. Vol. III. Price not stated.

FISCHER, GUSTAV, Jena.

Klinisches Jahrbuch. Elfter Band. Drittes Heft. Price M.4.50.

Vorlesungen über Uramie. Von Prof. G. Ascoli, Dozent an der königl. Universität zu Genua. Price M.8.

G. P. PUTNAM'S SONS, New York and London.

The Story of the Vine. By Edward R. Emerson, President of the Brotherhood Wine Company, New York. Price not stated.

GOVERNMENT PRINTING OFFICE, Washington.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series. Vol. VIII. Insane—Kysthospitalet.

GURNEY AND JACKSON, 1, Paternoster-row, E.C.

Chemistry, General, Medical, and Pharmaceutical, including the Chemistry of the British Pharmacopœia. By John Attfield, F.R.S., M.A., and Ph.D. Tübingen, F.I.C., F.C.S. Edited by Leonard Dobbin, Ph.D. Würzburg, F.I.C., F.C.S. Eighteenth edition. Price 12*s.*

HARRISON AND SONS, 45, St. Martin's-lane, W.C.

International Catalogue of Scientific Literature. First Annual Issue. O., Human Anatomy. Vol. XIII., 1903 (June). MS. completed November, 1902. Price 10*s.* 6*d.* Q., Physiology, including Experimental Psychology, Pharmacology, and Experimental Pathology. Part II. Vol. III., Part II., 1903 (April). MS. completed December, 1902. Price 18*s.*

IMPRENSA NACIONAL, Lisboa.

Meningite Cerebro-espinhal Epidemica (1902). Relatorio apresentado ao Ex.mo Sr. Enfermeiro-mor dos Hospitaes, Conselheiro José Curry da Camara Cabral por Carlos França, Medico dos Hospitaes, Tenente medico e Chefe de Serviço do Real Instituto Bacteriologica. Price not stated.

KIMPTON, HENRY, 13, Furnival-street, Holborn, E.C.

Bacteriology. By Fred. C. Zapffe, M.D., Professor of Pathology and Bacteriology in the Illinois Medical College. Kimpton's Series of Modern Text-books. Series edited by Bern B. Gallaudet, M.D., Demonstrator of Anatomy and Instructor in Surgery, College of Physicians and Surgeons, Columbia University, New York. Price 7*s.* 6*d.* net.

LEWIS, H. K., 136, Gower-street, W.C.

A Handbook of the Diseases of the Eye and their Treatment. By Henry R. Swanzy, A.M., M.B., F.R.C.S.I., Surgeon to the Royal Victoria Eye and Ear Hospital, and Ophthalmic Surgeon to the Adelaide Hospital, Dublin. Eighth edition. Price 12*s.* 6*d.*

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

Essays on Rural Hygiene. By George Vivian Poore, M.D., F.R.C.P., Commander of the *Dannebrog*, Emeritus Professor of Medicine and Clinical Medicine, University College, London. Third edition. Price 6*s.* 6*d.*

MERRILL AND BAKER, New York.

A Lay Thesis on Bible Wines. By Edward R. Emerson, President of the Brotherhood Wine Company, New York. Price not stated.

NAUD, C., 3, Rue Racine, Paris.

La Cure de la Tuberculose dans les Sanatoriums Français. Par le Docteur A. F. Plicque, Médecin de l'Œuvre Antituberculeuse des Instituteurs, et Dr. Verhaeren, Directeur du Sanatorium d'Alger. Price not stated.

De la Dégénerescence Cancéreuse de l'Ulcère de l'Estomac (Ulcère simple et Ulcère Brunnérien). Par le Dr. C. Audistère, Ancien Interne des Hopitaux de Paris. Price not stated.

OLIVER AND BOYD, Tweeddale-court, Edinburgh.

Descriptive Catalogue of the Anatomical and Pathological Specimens in the Museum of the Royal College of Surgeons of Edinburgh. By Theodore Shennan, Conservator, Fellow of the College. Price 7*s.* 6*d.* net.

PHILIP, GEORGE, AND SON, LIMITED, 32, Fleet-street, E.C.

Philips' Anatomical Model of the Female Human Body. Edited by W. S. Furneaux, Author of "Animal Physiology," "The Outdoor World," &c. Price 4*s.* net.

PRASS, EMILIO, 59-60, Piazza dei Martiri, Napoli.

La Neurastenia e La Vita Moderna. Comm. Dott. Diomede Carito. Price L.3.00.

RICHARDS, GRANT, 48, Leicester-square, W.C.

Hypnotism: its History, Practice, and Theory. By J. Milne Bramwell, M.B., C.M. Price 18*s.* net.

SMITH, ELDER, AND CO., 15, Waterloo-place, S.W.

The Principles of "Open-air" Treatment of Phthisis and of Sanatorium Construction. By Arthur Ransome, M.D., M.A. Cantab., F.R.C.P., F.R.S., Consulting Physician to the Manchester Hospital for Consumption and Diseases of the Chest and Throat. Price 5*s.*

WESLEY AND SON, WILLIAM, 28, Essex-street, W.C.

A Laboratory Manual of Physiological Chemistry. By Ralph W. Webster, M.D., Ph.D., Department of Physiological Chemistry, the University of Chicago, and Waldemar Koch, Ph.D., Department of Pharmacology, the University of Chicago. Price 6*s.* 6*d.* net.

WRIGHT, JOHN, AND CO., Bristol.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Professor Dr. Carl von Noorden, Physician-in-Chief to the City Hospital, Frankfort a M. Part I. Obesity: the Indications for Reduction Cures. Price 2*s.* 6*d.* net. Part II. Nephritis. Price 3*s.* net. Part III. Membranous Catarrh of the Intestines (Colica Mucosa). With the Collaboration of Dr. Carl Dapper. Price 2*s.* 6*d.* net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

BANNISTER, MARMADUKE, M.B. Lond., M.R.C.S. Eng., has been appointed Honorary Physician to the Blackburn and East Lancashire Infirmary.

COCKBURN, WILLIAM, M.B., C.M. Aberd., has been appointed Certifying Surgeon under the Factory Act for the Old Meldrum District of the County of Aberdeen.

DAVY, HENRY, M.D., F.R.C.P. Lond., M.R.C.S. Eng., has been appointed Honorary Consulting Physician to the Winsford Cottage Hospital, Beaworthy, Devonshire.

FORTUNE, JOHN, M.B., Ch.B. Edin., has been appointed House Surgeon to the Royal Buckinghamshire Hospital, Aylesbury.

HODGSON, J. F., M.D., Ch.B. Vict., has been appointed Assistant Medical Officer of Health of the County Borough of Halifax.

JAMES, ALFRED H., M.D., M.S. Edin., has been appointed Senior Medical Officer for the Blaenavon Workmen's Fund in connexion with the Blaenavon Iron and Coal Works. Corrected notice.

TAYLOR, F. W., M.B., C.M. Edin., has been appointed Honorary Assistant Physician to the Blackburn and East Lancashire Infirmary.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM AND MIDLAND EAR AND THROAT HOSPITAL.—House Surgeon for seven months. Salary at rate of £70 per annum.

BIRMINGHAM WORKHOUSE INFIRMARY.—Assistant Resident Medical Officer. Also Assistant Resident Surgical Officer. Salary £100 per annum with apartments, rations, attendance, &c., in each case.

BLACKBURN AND EAST LANCASHIRE INFIRMARY.—Junior House Surgeon. Salary £70 per annum, with board, washing, &c.

BURTON-ON-TRENT INFIRMARY.—House Surgeon. Salary £120, rising to £140 per annum, with rooms, board, coal, and light free.

DEVON AND CORNWALL SANATORIUM FOR CONSUMPTIVES, Didworthy, South Brent.—Resident Medical Superintendent.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 a year, with board, lodging, and washing.

ECCLES AND PATRICROFT HOSPITAL.—House Surgeon, unmarried. Salary £70 per annum, with board and washing.

HACKNEY UNION WORKHOUSE AND INFIRMARY, Homerton, N.E.—Second Assistant Medical Officer, unmarried. Salary £100 per annum, with rations, apartments, washing, and attendance.

HITCHIN, THREE COUNTIES ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £150 a year, with board, lodging, and washing.

HOSPITAL FOR DISEASES OF THE THROAT, Golden square.—Anæsthetist. Also Senior Clinical Assistant.

KENT COUNTY ASYLUM, Chartham, near Canterbury.—Third Assistant Medical Officer, unmarried. Salary £140, with board, quarters, attendance, and washing.

LEICESTER INFIRMARY.—Assistant House Surgeon. Salary £80 per annum, with board, apartments, and washing.

NEW HOSPITAL FOR WOMEN.—Clinical Assistant (female).

ORKNEY, PARISH COUNCIL OF ROUSAY AND EGILSHAY.—Resident Medical Officer. Salary £51 stg. per annum.

PAISLEY, ROYAL ALEXANDRA INFIRMARY, Barbour Park.—Assistant House Surgeon. Salary £30, with bed and board.

PRESTON ROYAL INFIRMARY.—Assistant House Surgeon. Salary £60 per annum, with board, lodging, washing, &c.

ROCHESTER HOUSE, Little Ealing, W. (Metropolitan Asylums Board).—Visiting Medical Attendant. Salary £100 per annum.

SALOP INFIRMARY.—Assistant House Surgeon, for six months. Salary at rate of £50 per annum, with board and apartments.

SAMARITAN FREE HOSPITAL, Marylebone-road, N.W.—Clinical Assistants.

SCHOOL BOARD FOR LONDON, EVENING CONTINUATION SCHOOLS.—Lecturers and Examiners in First Aid and Home Nursing.

SEAMEN'S HOSPITAL SOCIETY, Greenwich, S.E.—House Physician for the "Dreadnought" Hospital, Greenwich. Salary £65 per annum, with board, residence, and washing. Also Junior Resident Medical Officer. Salary £40 per annum, with board, residence, and washing. Also House Surgeon for the Branch Hospital, Royal Victoria and Albert Docks, E. Salary £50 per annum, with board, residence, and washing.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon for six months. Honorarium of £25, and board and lodging.

WANDSWORTH AND CLAPHAM UNION INFIRMARY, St. John's-hill, near Clapham Junction.—Junior Assistant Medical Officer. Salary at rate of £100 per annum, with board, lodging, and washing.

WEST LONDON HOSPITAL, Hammersmith-road, W.—House Physician and House Surgeon for six months.

Births, Marriages, and Deaths.

BIRTHS.

JONES.—On July 6th, at Malabar House, Whitly, the wife of Arthur R. Jones, M.R.C.S., L.R.C.P., of a daughter.

LEIGH.—On August 29th, at Park-road, Southend-on-Sea, the wife of B. Hilton Leigh, L.R.C.P., L.R.C.S., of a daughter.

TILBURY-FOX.—On the 2nd inst., at The Gables, Ashford, Kent, the wife of Campbell Tilbury-Fox, M.R.C.S., L.R.C.P., of a son.

WARD.—On August 27th, at Northumberland Lodge, Bloemfontein, Orange River Colony, the wife of Arthur Blackwood Ward, B.A., M.B., B.C. Cantab., M.R.C.S. L.R.C.P. Lond., of a daughter.

MARRIAGES.

GREEN—GILBERT.—On Sept. 4th, at St. James's Church, Knatchbull-road, S.E., Albert Green, M.B. Lond., to Gertrude Annesley, daughter of William Gilbert.

HARRIS—HARTLEY.—On Sept. 5th, at St. Mary Magdalene's, Addiscombe, Charles Poulett Harris, M.D., to Violet Amsden, daughter of John Hartley.

MILNE—TRUELL.—On Sept. 3rd, at the parish church, Wicklow, John Milne, M.B., to Mary Louisa, daughter of the Rev. W. H. A. Truell.

DEATHS

JESSOP.—On Sept. 6th, at The Quarries, Chapeltown, in his 66th year, Thomas Richard Jessop, F.R.C.S., of 32, Park-square, Leeds.

PAGE.—On Sept. 6th, at Oulton Broad, Lowestoft, William Irving Page, M.R.C.S.

PATTERSON.—On Sept. 2nd, at Ramelton, Ireland, Lieutenant-Colonel T. W. Patterson, D.S.O. (late R.A.M.C.).

WHITE.—On August 31st, in Upper Egypt, Arthur Thomas White, M.R.C.S., L.R.C.P.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SANITATION AND BUNGALOWS.

OUR correspondent whose communication appeared in THE LANCET of August 15th, p. 508, writes as follows:—

In reply to Mr. Swales's letter in your issue of August 29th residence at "Bungalow Town" may be attractive provided one does not care to bathe in the sea or to spend much time on the beach. A large number of the bungalows are, however, sublet for short periods during the summer to people who go to the seaside mainly in order to do both; and in advertisements which frequently appear stress is laid upon the advantages of Shoreham beach in these respects. One does not, however, expect to find that the time of bathing must (to adopt Mr. Swales's suggestion) be regulated by the advent of the "sanitary man," even if one feels any inclination to bathe at all in such circumstances, nor does one expect to find that it is impossible (at least for ladies and children) to go on the beach at any time except perhaps during high tide in the afternoon or evening, without constant risk of being disgusted; and having made these discoveries one is not much consoled by reflecting that the *interior* of one's bungalow is in an ideal state of sanitation. Curiously enough, Mr. Swales's letter actually confirms my statements to which he takes such exception. At the time I wrote before only two men were employed and the work on some days was not over until nearly 1 P.M. Then another man was put on, but it still was not over until a late hour in the morning. This was not the fault of the men, but, as shown by Mr. Swales's own figures, was due to the insufficiency of the numbers employed. There is also this dilemma, that if the work is as a matter of decency done at an early hour it must frequently be done when the tide is rising, with results such as I have already described. In the afternoon and evening, if the tide happens to be low, servants from the bungalows are allowed, and even directed to empty slop-pails and buckets of household refuse into the sea and they often do this without the slightest consideration for anyone who may be near them at the time. Although I stayed very little on the shore during my visit I observed several instances in which the rules concerning the disposal of offensive and dangerous matter (such as vegetable refuse, empty tins, and broken glass) had been disregarded, and considering the frequent changes of tenancy it is difficult to see how they can be practically enforced. No doubt in normal August weather the state of the beach would have been far worse than it was. It is, of course, true that large towns discharge their sewage into the sea, but when properly done it is conveyed a long distance from the shore and advantage is taken of currents to carry it still further. Here the excreta furnished by over 200 bungalows, some of large size, are daily thrown in all along the beach. Certainly after a short time, varying with the state of the sea, nothing may be perceptible to the senses, but this is not a scientific proof that (as some residents are of opinion) "it has all been carried right away." The question, however, is one for experts, and I wish to bring chiefly into notice other aspects of the case. I understand that the local sanitary authority is unwilling for certain reasons to assume control and that the agent of the ground landlord and the owners of the bungalows have made their own sanitary regulations. These are signed by Mr. Swales who is employed by the owners to carry them out. The tone of his letter in your issue of August 29th is thus accounted for although it is not excused. A place in which to spend a holiday is apt to be selected or even recommended without strict inquiry into the sanitary arrangements, and even when inquiry is made the reply (as I know to my cost) is sometimes misleading. I have written chiefly in the hope that others may be spared the annoyance and disappointment experienced by my family and myself.

Our correspondent sends with his letter notes of divers filthy circumstances which came under his personal observation. He makes out a good case for believing that "Bungalow Town" demands of its residents—at any rate upon occasions—very strong stomachs. This much might, perhaps, have been assumed from Mr Swales's letter. The attention of the Local Government Board should be drawn to the matter.

THE PICRIC ACID TREATMENT OF BURNS.

To the Editors of THE LANCET.

SIRS,—Having had considerable experience in the treatment of burns in the General Hospital, Birmingham, where a ward is specially set apart for these cases, may I venture to answer Mr. J. Johnstone Redmond's query in THE LANCET of August 22nd, p. 580. Picric acid is best applied plentifully and as a saturated solution (1 in 100 approximately), for its action is to coagulate the albumin on the surface of the raw wound and thus to form a protective coating to the exposed nerve endings. In this way it diminishes the pain and thereby also the shock caused by large superficial burns. But its action is also beneficial in drying up the surface to which small sloughs are adhering and discouraging, if not actually inhibiting, the growth of micro-organisms. In this way, therefore, it diminishes the

chances of septic absorption. The renewed growth of epithelium over a recent burn is in no way impeded by the acid and I have never seen signs that any harmful absorption has taken place. If the sloughing process is extensive and foetid, picric acid will probably prove ineffective, for it cannot penetrate deeply, since its action is altogether a surface one. It is better in such cases to apply antiseptic fomentations until the sloughs have separated and the wound has cleaned up. The discharge from a burn wound will be found to diminish markedly under this treatment, while the symptoms of wound absorption will be correspondingly minimised. It will be sufficient to dress clean wounds once in 24 hours, and the only drawback that I can urge against picric acid is that it is apt to dry the lint on the wound and thus to be injurious to the new epithelium and cause pain during the dressing. To meet this later defect I have lately used an ointment composed of one drachm of picric acid to one ounce of vaseline or lanoline. This I find will keep a wound sweet, lessen the discharge, and promote healing very successfully, and I have found it useful not only in burns, but in wounds also, with much loss of skin. Picric acid has been objected to because it stains. A good wash immediately after dressing a patient will, however, almost entirely remove it from the hands, while any marks on sheets, &c., will all come out at the laundry. I have used picric acid with success in certain other lesions, especially in onychial troubles, and have recorded the same in the *British Medical Journal* of Feb. 21st, 1903. From practical experience of this remedy I think one can claim that it has unusual properties among external medicaments. While it possesses marked antiseptic qualities by reason of the drying and hardening of the tissues that it produces, it has at the same time no injurious or irritant action on delicate, young, growing epithelium. Its anæsthetic effects still further enhance its value.

I am, Sirs, yours faithfully,

Sept. 1st, 1903. F. VICTOR MILWARD.

To the Editors of THE LANCET.

SIRS,—I see that a correspondent has requested information regarding the use of picric acid in burns. I will admit that picric acid is the best dressing for superficial burns but its effect must be carefully watched. I had always scouted the idea that toxic symptoms could follow the use of solutions of this substance until one case presented itself. A saturated watery solution was applied to an extensive steam burn and it had its usual beneficial effect. The extent of the burn made recovery in any case very problematical. After about three days' application of this dressing a brilliant red "measly" rash developed. The temperature was very high; and the condition of the patient was critical. The rash spread over almost the entire body. The urine was of a very dark greenish hue. The patient died comatose. This patient had been seen by several physicians who were unable to account for the rash on other than the septic theory of its origin. It was certainly neither the rash of measles nor that of scarlet fever. This case made a deep impression upon me and I had the suspicion that the disturbance dependet, to some extent at least, upon the picric acid. I had employed this solution in many cases in the wards of the Western Infirmary. Eventually to diminish the frequency of the dressings dried picric gauze was employed with even better results. About 18 months ago I employed picric acid dressing in solution to a burn of the arm and leg. Again the same rash developed as in the previous case and the general disturbance was extreme. The patient was treated with large doses of carbonate of potassium and was flushed out with large amounts of fluid. Recovery was rapid. This second case has convinced me that the picric acid as a dressing in burns, though most valuable, has to be employed with caution to large areas. These are the only two cases which I have observed among many hundreds so treated, but they will not deter me from continuing the use of picric acid in most burns and in the host of other conditions for which I think it is specially indicated as a dressing.

I am, Sirs, yours faithfully,

Sept. 9th, 1903. ALEX. MACLENNAN, M.B. Glasg.

THE DUTIES OF AN UNQUALIFIED ASSISTANT.

To the Editors of THE LANCET.

SIRS,—I have been dispenser, with the Apothecaries' Hall qualification, to a medical man for the last 20 years and during that period I have been in the habit of extracting teeth on behalf of my employer. It is now suggested that owing to some, to me unknown, recent legislation I by making extractions am committing an illegal act and that my employer is thereby liable to censure by the General Medical Council. I should be glad of your opinion upon the matter and, as doubtless many other dispensers are similarly placed, perhaps you will insert your opinion in an early issue of your journal? Thanking you in anticipation,

I am, Sirs, yours faithfully,

Sept. 7th, 1903. DISPENSER.

*** An unqualified assistant cannot do the work of a registered medical man save under the immediate supervision of his principal. This is the rule of the General Medical Council.—ED. L.

INCOME-TAX OVERCHARGES.

To the Editors of THE LANCET.

SIRS,—That hardy annual the blue notice of charge having begun to make its appearance, will you permit us to remind your readers that if they are dissatisfied with their assessments they can appeal against the same to the commissioners for special purposes at Somerset House. The principal occupation of these gentlemen is the hearing of appeals, and not only do they understand income-tax as no local commissioners do but they can be relied upon to treat appellants with courtesy and to see that they get fair play.

Oct. 5th next is the last day for giving notice to set off a loss in business against income from any other source.

We are, Sirs, yours faithfully,

THE INCOME-TAX ADJUSTMENT AGENCY, LIMITED.

Poultry, London, E.C., Sept. 8th, 1903.

MEDICAL SUPERSTITIONS.

To the Editors of THE LANCET.

SIRS,—In view of the interesting lectures delivered by Dr. J. F. Payne on the History of Medicine (THE LANCET, June 27th, p. 1793, and July 4th, p. 6, 1903), the following narration of a superstitious mode of curing disease should prove instructive. I quote it from the well-known classical work, "White's Natural History of Selborne," edited by Jardine (Routledge).

P. 196.—"In a farmyard near the middle of this village stands, at this day, a row of pollard ashes, which by the seams and long cicatrices down their sides manifestly show that in former times they have been cleft asunder. These trees when young and flexible were severed and held open by the wedges, while ruptured children, stripped naked, were pushed through the apertures, under a persuasion that by such a process the poor babes would be cured of their infirmity. As soon as the operation was over the tree, in the suffering part, was plastered with loam and carefully swathed up. If the parts coalesced and soldered together, as usually fell out, where the feat was performed with any adroitness at all, the party was cured, but where the cleft was continued to gape the operation, it was supposed, would prove ineffectual. Having occasion to enlarge my garden not long since, I cut down two or three such trees, one of which did not grow together."

I am, Sirs, yours faithfully,

SHIAVAX K. N. KABRAJI, L.M. & S.

Bombay, August 8th, 1903.

MEDICAL POSTS IN THE MERCANTILE MARINE.

To the Editors of THE LANCET.

SIRS,—Some few weeks ago there appeared in THE LANCET an advertisement asking for applicants for the post of surgeon to the ships of the Booth Line. I shall be pleased to know from some of those who were applicants what sort of a reply was received.

I am, Sirs, yours faithfully,

Sept. 7th, 1903. MEDICUS.

F. B.—The data given are insufficient to enable us to give a fair valuation. Much depends on the class of practice and the total amount of book-debts in proportion to the whole practice and whether the practice is large or small. In Case 1 the value of appointments would be almost their face value less about 5 per cent., but patients' accounts might be worth anything from 7*s.* 6*d.* to 12*s.* in the pound. In Case 2 the debts would be worth probably 25 per cent. less than in Case 1 owing to their age. It would be far better, however, to have them properly valued by an expert in such matters.

Rusticus.—Rent in London, whether for a flat or a house, depends almost entirely upon locality. A flat of three rooms in Mayfair will be 30 times as expensive as a flat of ten rooms in an unfashionable suburb. Our correspondent should settle in his mind where he wants to live and communicate with the house agents of the neighbourhood, whose names can be found in the Post Office Directory.

Umbilicus.—Umbilical hernia in infants frequently undergoes spontaneous cure. As a rule no pad is required, but the edges of the umbilical opening should be approximated by a piece of strapping applied transversely. Circumcision may be required in a male infant with a long and narrow prepuce.

I. G.—A duly qualified and registered medical man can sue for the recovery of fees for dental work in the same manner as for any other branch of medical practice. We do not think that a practitioner should call himself "dental surgeon" unless he holds a special licence in dentistry.

H. E. L.—Certain agents provide for the situation by definitely pointing out that if future engagements are obtained through their original introductions they expect their fees. Where no such arrangement is entered into the medical man must act as his private feelings suggest to him.

W. H. B.—We cannot undertake to give an opinion. Our correspondent had better communicate with the Local Government Board, giving details as to the regulations for admission to the home in question and the terms upon which he holds his post.

F. L.—Our correspondent's best plan is to consult the medical attendant of the patient in question. A list of homes for incurable and chronic cases of illness will be found in "Burdett's Hospitals and Charities."

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Sept. 10th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks at 8.30 A.M.
Sept. 4	30·08	S.E.	...	120	75	57	58	61	Hazy
,, 5	29·83	S.	1·53	107	70	61	62	63	Raining
,, 6	30·10	S.W.	...	81	65	53	52	56	Dull
,, 7	30·22	WSW	0·03	108	70	51	52	54	Overcast
,, 8	30·13	S.W.	...	104	67	54	57	61	Cloudy
,, 9	29·74	W.	0·18	118	67	59	61	64	Raining
,, 10	30·00	N.W.	0·05	100	59	47	50	54	Cloudy

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (15th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (16th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (17th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (18th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (19th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 12*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

The rates of subscriptions, post free, either from THE LANCET Offices or from Agents, are:—

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Six Months	0 16 3	Six Months	0 17 4
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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

During the week marked copies of the following newspapers have been received: *Ross Gazette, Halifax Evening Courier, Aberdeen Daily Journal, Northern Daily Mail, Yorkshire Post, Liverpool Daily News, Bristol Evening News, &c.*

Communications, Letters, &c., have been received from—

A.—Messrs. Adlard and Son, Lond.; Messrs. Arnold and Sons, Lond.; Messrs. Armour and Co., Lond.; Messrs. Allen and Hanburys, Lond.; A. R. H.; A. E. G.; Mr. W. F. Abbott, Woolacombe Bay.

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